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Fair and Square

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Fate sets us here or there—
But we can control our actions,
And we MUST PLAY FAIR.

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"He went out 'SQUARE.'"

—G. H. C.

Sept., 1923.

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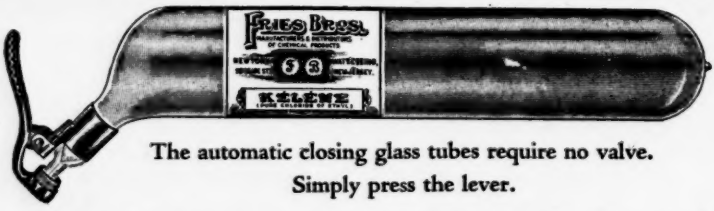

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CLINICAL MEDICINE
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Vol. 30, No. 9 SEPTEMBER, 1923

The Duration of Pregnancy

WHEN the duration of pregnancy, which is commonly estimated at a "normal" of 280 days, is greatly exceeded or much curtailed, the case may assume medico-legal importance, inasmuch as it may happen that the legitimacy of the offspring is placed in question. Take, for instance, a case where, after a long absence, the husband returned home on May 13 and lived with his wife for several weeks thereafter. The wife, who menstruates irregularly, had her last period on April 5. The child was born on November 23; that is, 194 days after the date of the husband's return and, presumably, of the fruitful coitus. The doctor held the child to be premature, although it weighed eight pounds at birth in scales which subsequently were said to be inaccurate. The child was nursed by the mother; no trouble was found in rearing it.

Now, a child born 194 days after fruitful coitus would be in the twenty-eighth week of gestation, when the average weight is from 2½ to 3 pounds. At that date of prematurity, the child is extremely feeble and can be reared only exceptionally.

On the other hand, take cases in which a single coitus occurs, after which the husband leaves home, while pregnancy follows and does not terminate for as much as 310 and more days. Such cases of protracted gestation are on record and it has been shown that isolated instances have been prolonged to as much as 320 and even 336 days. Babies born after protracted gestation are very large, usually, and show other signs of postmaturity.

This subject, which is of considerable interest, formed the topic of an address by Dr. Thomas Watts Eden, who is obstetric physician to the Charing Cross Hospital, London (*Lancet*, June 15, 1923).

Doctor Eden expresses the opinion that, to determine the "normal" duration of pregnancy, is in reality a problem of great complexity and it probably does not admit of a precise solution.

If a child is born upon a given date, is it possible to determine therefrom the date of its procreation, or conception, with precision, and, if not, can limits be set beyond which the procreation of the child would not be possible? It is conceivable, Doctor Eden says, that, in the future, the question of parentage may be attacked in quite a different manner from that in vogue now. It is possible that certain reactions of the blood may become of service under

limited circumstances. The reaction of blood corpuscles in relation to clotting allows of four blood-groups being distinguished. It has been shown that these characters of the blood are transmitted on Mendelian principles, and it is not impossible that a given blood-group in the child may be shown to be incompatible with certain other blood groups in the presumptive parents. However, since these problems have by no means been settled, the only possible medical contribution to question of parenthood at present lies in the question of the duration of pregnancy and its relation to the characteristics of the child when born.

In calculating the duration of pregnancy, Doctor Eden quite properly prefers to speak of the *average* rather than the *normal* duration. Wide variations from the average may occur without any clearly-defined departure from the normal in the characters of the child when born. In a series of 782 carefully-observed cases, the extreme limits of gestation were 252 days and 326 days; with a mean figure of 289 days. The variation in either direction from the mean amounts to 13 percent

One important factor that renders the calculation of the pregnancy duration difficult it is the uncertainty as to the incidence of ovulation. Whether gestation be calculated from the first day of menstruation or from the last, is equally unreliable for the reason that ovulation by no means necessarily coincides with menstruation. The menstrual cycle varies in length not only in different women but in the same woman at different times. Indeed, it has been shown that [considering the premenstrual period, the period of actual menstruation and the postmenstrual stage, all of which have been claimed to cover about three weeks] ovulation may occur within a reasonably variable space of time. Since it is known that spermatozoa may remain alive in the Fallopian tubes for three weeks, and since it is possible that even that does not represent the extreme limit of their vitality, it is manifest that ovulation occurring, say, on the first or on the last day of such a three-week period would change the duration of pregnancy materially. All this produces a great degree of uncertainty, and it must be admitted that fertilization (which is the actual commencement of gestation) may occur as much as three weeks after the last monthly period, even in the absence of a further coitus In this manner, it may be made to appear that pregnancy has lasted three weeks longer than is actually the case.

Nevertheless, it must be assumed that the actual process of gestation varies in length not only in different subjects but in the same woman in successive pregnancies. This is indicated by the difference of 74 days in the extreme figures (252 and 326) of gestation. In the case of one woman, three successive pregnancies terminated at 277 days, at 325 days and at 285 days respectively, which show that a wide variation may occur in the same individual in the length of the gestation period.

A further source of error may possibly lie in the actual cause of labor and we do not know by what means pregnancy is terminated and what it is that brings about the expulsion of the child from the uterus.

From all this, Doctor Eden concludes that we are quite unable to deduce with precision the date of procreation (or conception) from the date of delivery. He therefore attempts to make such a deduction from the characters of the child when born. While a child is held to be viable after a gestation of twenty-eight weeks, it is known that the rearing of a child born thus prematurely between the calculated periods of twenty-eight and thirty-two weeks is extremely difficult and attended by a very high mortality. Babies born thus prematurely present certain characteristics as to weight and length and other signs of prematurity.

For practical purposes, Doctor Eden refers to the average weight of a child born at term as seven pounds. In 500 carefully-observed cases at calculated full time, the weight varied between four pounds eleven ounces and nine pounds twelve ounces. In a series of cases carefully estimated to be of thirty-six-week development (that is, one month premature), Eden found the weight to vary from four to seven pounds. Of course, the closer delivery is to term, the less any existing signs of incomplete development will be. Unfortunately, in this matter also, our information is only tentative at best.

Medico-legally, the greatest interest attaches to those cases in which the average duration is exceeded considerably, and Eden speaks of "protracted gestation" when pregnancy exceeds three hundred calculated days from the last menstruation. Such cases are not so very uncommon and Eden has found that something like 6 percent of cases surpass the three-hundred days in Germany, while this frequency is less in England, and he believes that racial characteristics have their bearing upon the length of the gestation process. In all these calculations, it must be remembered that the possibilities of error are great.

Eden attaches considerable importance to the

weight of the baby at birth. While this also varies materially and may be as high as ten pounds in babies supposedly born at term, it is Doctor Eden's opinion that the possibility of postmaturity should be entertained in the case of all children weighing ten pounds and more at birth. In such cases, other fetal characteristics besides weight may be taken into consideration.

In a series of cases in his private practice, in which the calculated period lay between 290 and 300 days, the weight of the child varied from eight and one-quarter pounds to twelve pounds, the average being nine and one-half pounds. In a series of six cases reported in literature, in which the calculated period lay between 320 and 336 days, the smallest baby weighed eleven and one-half pounds and the largest thirteen and one-quarter pounds. It will be seen that the figures are all at least 65 percent above the average weight at term, although the weight is evidently not determined solely by the duration of pregnancy. In concluding his discussion, Doctor Eden declares that sufficient medical data have been accumulated to show that human pregnancy may be prolonged to a period of 336 calculated days, and that there is nothing to show that even this figure is the outside limit beyond which prolongation of pregnancy is impossible. Further, he submits that cases of prolongation of pregnancy beyond 320 calculated days are so rare that alleged instances should be very carefully scrutinized and that confirmatory evidence should be forthcoming if they are to be accepted as authentic. The child would in all cases be much above the average weight of children born at term; moreover, the other bodily dimensions of the child, which have not been referred to in this paper, would be also much above the average. If such confirmatory evidence is wanting and if the circumstances of the case offer inducements for misrepresentation, we as doctors would be obliged to reject the authenticity of the case.

The best that we can do for one another is to exchange our thoughts freely; and that, after all, is about all.—Fronde.

MEDICINE AND THE ALLIED SCIENCES

In conversation with an advanced student at the University of Chicago, the other day, I was told of some lively discussions being held there, by medical students and physicists, concerning Abrams' methods of diagnosis and treatment. It appears that the "medics" are anything but clear in their ideas concerning this thing and that the physicists charge them in effect with muddle-headedness and suggest that they should formulate their ideas more exactly.

Incidentally, it is difficult for us to see how anybody *can* have clear and lucid ideas on this particular subject. Still, it seems only fair to demand that theories on which actual work is based should be presented in a reasonably intelligible manner.

The gentleman with whom I was talking referred to the existing isolation, among scientists, of medical men and the fact that diseases are studied almost entirely from a purely medical aspect. By way of illustration, he pointed out that, while years ago, chemistry and physics constituted two separate and distinct sciences, at present the dividing line between the two could hardly be drawn and that it was impossible to say where chemistry ends and physics commences.

It was agreed that the study of disease and, no less, the study of sick people, should with profit be undertaken from the viewpoints not only of the clinician, the pathologist and physiologist, and the psychologist, but that the chemist and the physicist should be enrolled likewise and that, in this manner, the expectation of ultimate success in gaining a true understanding of many obscure disease processes would be greatly increased.

We are quite accustomed to pride ourselves on the marvellous advance that medicine has made in recent years; and justly so. However, if the suggestion looking toward a more complete corps of investigators were carried out, I believe that a more inclusive, complete and correct understanding of our clinical problems would be gained and that, ultimately, the progress made in clinical medicine would be far greater than it has been at any one period in the history of medical science and art.

I am reminded of the staffs of research workers—scientists, pure and simple—who are employed by some great manufacturing concerns. It is my impression that such scientific staffs originated in Germany. These investigators are turned loose to follow their studies in any line or along any lead that may promise results of interest. They are not limited in time or stinted in money and facilities. If they produce nothing tangible in five years, well and good. Something may turn up in the sixth or tenth or fifteenth year. In this manner, numerous valuable inventions have been suggested and the result was obtained by coordination of effort and by the continued co-

operation of many investigators.

It may happen that a physicist does not get anywhere much with his problem and that he turns it over to the chemist pure and simple. From him, it may go to the electrician or to a mechanic; in short, it may make the round of the consultants before tangible results are obtained.

I am thinking that something similar would be very feasible in problems of health and ill health. I can imagine a corps of physiologists, pathologists, chemists and physicists, of electricians, both theoretical and practical and, especially, of physicians; but the latter should not be desk-physicians—theorists who have completed their medical course and are now possibly instructors in some theoretical subject or editors of medical journals or writers of medical books; all this without ever having examined a patient or treated a sick person. There are such people, although I can hardly conceive it possible that they call themselves physicians. Such men would be of no earthly use in a concilium of the kind I have in mind. The men who serve there would have to be *practical* men, men who have served their apprenticeships in the practice of medicine, who have been general practitioners, who, at the same time, are accomplished in the medical sciences and who could best suggest and guide investigations, studies and researches of the kind that I am thinking of.

This dream of mine appeals to me. It would require an institution analogous to, although not like, the Mayo Institution. It would have to be financed with the aid of a wealthy endowment, for, the members of the concilium would have to be well-salaried so as to be free from the strain incidental to earning a living. The facilities, both clinical and scientific, would have to be immense; numerous laboratories of all sorts would have to be at their disposal—of course, with adequate staffs of technicians. It would require library facilities like those afforded by the Surgeon-General's library, the library of the New York Academy of Medicine, that of the Boston Medical Library Association, or the John Crerar Library, in Chicago, etc., to serve the needs of these students. In short, the thing would be expensive and might not lead to tangible, practicable results for a number of years.

But, ultimately, in course of time, what remarkable gains could be made by a corps of devoted investigators that would enter upon every single problem from every conceivable viewpoint. I imagine that the history of many diseases would have to be rewritten and that the study of disease, from its very inception, would be rendered successful and fruitful of results, in a degree that we hardly can conceive today.

Leisure is time for doing something useful; this leisure the diligent man will obtain; but the lazy man, never.—Benjamin Franklin.

TUBERCULOSIS VACCINES

The reasons why vaccine therapy has not proved as uniformly successful in tuberculosis as in other bacterial diseases are manifold. We have frequently expressed the view that one of these reasons had to do with the multiple infection which exists almost invariably in cases of clinical tuberculosis and in consideration of which most physicians who are in favor of active immunization subject their patients to different steps of treatment. For instance, Crofton, of Dublin, ("Pulmonary Tuberculosis, Its Diagnosis, Prevention and Treatment," London, 1917) declares it to be advisable to immunize the tuberculous patient first against the associated "catarrhal," bacteria (or the mixed infection) before progressing to the immunization against the tubercle bacillus.

However, the great number of tuberculin preparations which have been offered to the medical profession, since the old tuberculin was first announced by Koch, in 1890, in itself bears witness to the difficulties attending the production of an active and successful tuberculosis vaccine. One reason for this has long been realized as being associated with the fact that the tubercle bacillus belongs to the "acid-fast" group, being provided with a fatty-waxy capsule that makes it more difficult to subject it to the action of chemicals and of the tissue fluid.

In *The Prescriber* for July (p. 259), an announcement, by Professor Dreyer, of Oxford, is referred to according to whom treatment of the tubercle bacillus with formalin and its subsequent extraction with acetone removes the lipoids, leaving a bacillus which is no longer acid-fast, which can be digested with trypsin and which will cause the production of antibodies when injected into animals. Dreyer has shown that a vaccine prepared on these lines effects definite improvement in animals with experimental tuberculosis. Professor Dreyer's report was made in the course of a lecture given at St. Mary's Hospital, in London, and was announced in the daily papers,

with the usual sensational headlines to which we are quite accustomed.

The editor of *The Prescriber* points out, quite correctly, that the idea of defatting the tubercle bacillus is not new. He refers to Fornet, who reported early in 1922 (*Deut. Arch. f. Klin. Med.*) that a tuberculin prepared from defatted tubercle bacilli was more effective than one not so prepared. He employed ether as a solvent for the tubercle bacillus. Wassermann obtained like results with benzin and Dreyer used acetone.

All of this is very interesting, but we are wondering whether Professor Dreyer gave suitable credit to those several investigators who have preceded him in his particular line of research. As a matter of fact, the importance of the tubercle-bacillus fats was recognized as long ago as 1897 by an American physician, the late Dr. Karl von Ruck, whose Watery Extract of Tubercle Bacilli was produced with the deliberate intention of eliminating the fats to which he attributed the unfavorable effects of the old tuberculin. While an ordinary tubercle-bacillus culture contains twenty-five percent and more of fatty substances, the Watery Extract of Tubercle Bacilli contained only faint traces, and even the later and more complete tuberculosis vaccine, which von Ruck perfected in 1912, carried not more than one-hundredth of one percent of fatty substances, since he had found that a fatty content of one percent gave rise to necrosis at the point of injection.

During his entire period of research and study of the tubercle bacillus, which lasted from before 1890 to his death (1922), von Ruck always insisted on the great importance of determining the exact chemistry of the bacillus and of eliminating the fats before the tubercle-bacillus cultures were worked up for the preparation of a vaccine.

Similar researches were published at least twelve years ago by Much of Hamburg and Deyke of Lübeck, who based their investigations of the tubercle bacillus upon their findings in the lepra bacillus. These research workers also laid stress upon the importance of the fatty constituents of the tuberculosis germ and even declared that these fatty substances, on being injected into the organism, not only produced harm (in larger doses) but that they would stimulate the production of antibodies specific for themselves on being introduced in sufficiently small amounts.

Somewhat later, Crofton, of Dublin, whom we have already mentioned, published a number of papers recording his tuberculosis "Antigen", in the preparation of which also the fatty constituents of the tubercle bacillus are put in solution and (we believe) curtailed in amount.

It will be seen that Professor Dreyer's idea is by no means new and that it has the support of investigations, and of splendid clinical results, be it said, that antedate his own work by over twenty years. Truly, there is nothing new under the sun and it is gratifying to see that, at this late date, the position defended long since by Doctor von Ruck has found confirmation.

There are but three classes of men, the retrograde, the stationary, and the progressive.

POPULAR MAGAZINE MEDICINE

The medical mind, collectively and individually, is a peculiar mixture of contradictory—let us say, complexes. We seem to find it difficult to break ourselves of the old-time attitude when the physician's orders were accepted as gospel without discussion, without objection and often unthinkingly. The fact that, many times, they were based on guess work made this state of affairs all the worse.

Times have changed in that as in so many other respects. Physicians have come to realize, in far greater degree than formerly, their limitations and to admit them honestly; which is a good thing.

For the last fifteen or twenty years, the public has shown a surprising and yet commendable interest in medical matters and has developed a lively desire to know, to be told, to have things explained. It is no longer sufficient for the physician to deliver an *ex cathedra* diagnosis followed by arbitrary orders without facing the question: Why? He is expected to explain what medicine will do and in what way it will ameliorate the disease.

Especially since John Hopkins Adams' first disclosures concerning the patent-medicine evil, popular magazines and newspapers have eagerly devoted space to problems that formerly seemed exclusively to belong to the domain of the physician. Articles are being printed on all sorts of topics, and it may happen that a physician, who has not read up recently on such topics and whose memory concerning them may have become rusty, may be placed in very difficult position through inconvenient questions. Special favorites are topics related to "new things", concerning problems that are still under discussion but about which preliminary and necessarily incomplete information has been given out. It is unfortunate that dis-

coveries or results of investigations come to the cognizance of the public prematurely, because, in that manner, unjustified hopes are aroused. One of the most glaring examples is the first announcement of tuberculin which was forced upon Koch against his will and before he had satisfied himself concerning the possibilities and the limitations of his discovery. We see another striking instance in the newspaper notoriety which a clever press agent procured for Voronoff and his monkey glands. More recently, Doctor Banting's discovery of insulin might prove harmful in some ways, if the production of this valuable substance were not guarded carefully and if care were not taken to limit the output and to supply only properly-qualified physicians.

Nevertheless, the popularization, as it were, of medical discoveries, medical advances, etc., is a good thing—a good thing in several ways. It not only encourages the popular mind to remain open to progress and to think reasonably along matters of health and ill health but it also has the wholesome result of forcing physicians to acquaint themselves diligently with new problems and with new developments of old problems.

Doctor Kern's article in CLINICAL MEDICINE for August, in which he discussed the psychology of crime, was brought vividly to our minds on reading an article appearing in *Collier's* for August 8. This was prepared by Edward H. Smith and deals with that phase of criminology which has recently interested medical men and also a fair proportion of the legal fraternity, especially judges. Mr. Smith finds that criminals very often are abnormal in some respects. If abnormalities amounting to some forms of actual insanity can now be definitely cured, and if the next ten years are likely to bring forth advances undreamed of today, it begins to look as if the criminal problem might have to be taken out of the hands of the police and the lawyers and put into the hands of the doctors, and, Mr. Smith adds, the medical men will do a much better job.

He refers to the small beginnings of this change which are already to be seen in the treatment of emotionally instable types by endocrinologists. At the Postgraduate Medical School and Hospital of New York, a number of these unfortunates are being taken care of, who have been sent from the courts for treatment. The treatment of emotional instability through gland medication is further advanced and better understood today, it is claimed, than any other medicinal or surgical treatment for criminals and abnormals.

Emotional instability, based on gland derangements, affects some of the finest and rarest minds among men. The most sensitive and delicately tuned natures, the men and women who should do the world's exceptional work, are often its victims. Some of them wind up their days in prison, while men say: "He is a brilliant man; a genius. What a pity he isn't straight."

"We know now that many men commit crimes because their thyroid glands or other glands are out of order. It is now certain that these glands control the activities of our nerves altogether, including the workings of our brains.

"This means that science has brought the matter of human conduct or misconduct down to a physiological and even to a chemical basis. Men do not err because they are evil, but because of chemical disturbances in that marvelously intricate machine, the human body. It would be going too far to say that we understand the treatment of all criminals today, but we do know how to restore some to normal and useful life."

Of course, Mr. Smith's account is unduly optimistic and, as a matter of fact, we are by no means as familiar with the consequences of endocrine deficiencies and with the relation of criminal tendencies and endocrine dysfunction as would appear. It is true, however, that much work has been done in that direction and it is true that, especially in criminology, some interesting discoveries in that direction have been made.

Without knowledge there can be no sure progress. Vice and barbarism are the inseparable companions of ignorance. Nor is it too much to say that, except in rare instances, the highest virtue is attained only through intelligence.—Charles Summer.

HOMEOPATHY AND THE CULTS

One of my correspondents, a regular practitioner, whose criticism of Doctor Ochsner's article we included under the title: "Our Homeopathic Friends Object" (August issue, p. 599), feels that his letter lost in force by being classed with letters from Homeopathic physicians. He considers himself obliged now to add some constructive comment. He says:

"I have seen some unexpectedly good results follow in the wake of Chiropractic treatment; I have seen some interesting and unlooked for results, in both, diagnosis and treatment, obtained by the Abrams' method; I have seen Osteopathic treatment do some good work; I have seen pure homeopathy produce results when all orthodox treatment had failed.

"Now, let's get at the bottom of all this

mess of crude 'fluid extract' or 'cult root.'

"Let's start in as a sensible collection of medical men and do something. I mean, let us extract the active principles and let the medical profession have them in suitable form to dispense free from all dross."

We have not the slightest doubt about it that our correspondent and others have seen unexpectedly good results follow in the wake of Chiropractic treatment, the treatment by Abrams' method, osteopathic treatment, purely homeopathic treatment, and all the rest of it. We ourselves have seen astonishing results after hydropathic treatment, and after Coué. Dr. James J. Walsh, whose book on "Cures" has been reviewed in another department of this issue (p. 705), would trace all these results to psychic factors. That may be correct; then again it may not. We have a strong suspicion that virtually all socalled internal diseases or, perhaps, better, ailments, possess a great psychic factor and that all "chronics" present a certain neurasthenic element that sometimes is difficult to determine and that, nevertheless, is very real. It is not a cause for astonishment that, in so far as the psychic factor is involved, almost any method that is utilized to supplement a previous line of treatment would bring unexpectedly good, unlooked for, interesting, etc., results.

You see, the treatment of "medical cases," or of patients complaining of non-surgical ailments, can not be undertaken by the rule of thumb, nor is it a definite, mathematical proposition, nor is the problem at all clear-cut. Invariably, we have more than one unknown factor and at least one variable quantity to consider in our investigations and in our remedial measures. A patient may respond astonishingly to a drug or to a method of treatment and may advance toward cure materially. After a few weeks, the very same means may prove worthless and remain without results entirely.

Shall we say that the ailments are "purely imaginary" and that, therefore, the patient imagining himself or herself ill is not ill by no means? We are reminded forcibly of the assertion of a noted French clinician, that an imaginary disease is not an imagined disease and that a patient who imagines himself ill *is* ill. Supposing it were the psyche only that is ill; that surely constitutes illness, not necessarily mental aberration, but still illness. According to the nature of the plaint, the treatment must be adjusted. If physical means are adequate to meet mental complaints, let the physical means be used.

It must be admitted that our surgical colleagues are prone to lose sight of this important factor of the patient's mentality. They are apt to become very impatient and to consider the matter closed when they inform you, after consultation, that the patient is nothing but a neurasthenic. The surgeons are so accustomed to see concrete evidences of abnormal conditions under their knife and they are so greatly in the habit of removing the evidences and the consequences of disease that they may lose sight of all the underlying and contributing factors that brought about the changes which actually are subject to surgical treatment. Surgeons deal with end-results. The beginnings of surgical diseases are almost invariably medical, internal—of course, with the important exception of injuries, whether cutting wounds or gun-shot wounds, or burns, or scalds, and such.

To come back to the problems of the internist, it must be admitted that it is extremely difficult and often impossible to evaluate the merits of any one method of treatment, and this very fact supports our contention that all irregular cults, all sects in medicine, all special forms of treatment, can not be invariably successful, for the reason that their viewpoint is limited.

By all means, let us adopt the suggestion of our correspondent. Let us investigate all the claims and the methods that are announced and promulgated, and let us find out in how far and under what circumstances they can be of benefit. It is quite true that adherents to special forms of treatment are handicapped in so far as they view disease problems in a limited manner. It is equally true that practitioners of medicine in general permit themselves only too often to become limited in their own outlook and that they are too prone to attempt the treatment of their patients by means of drugs or of physical methods of treatment in a manner which closely adheres to fixed schedules. You can never "rubber-stamp" people; you can never fit them all under the same hat. In all cases, it is necessary, first of all, to study the patient as an individual, and then the case, according to its merits. In one patient, chiropractic adjustment might produce benefit when, in another patient making the same complaints, presenting the same symptoms, such an adjustment would be considered as an insult and as worse than useless. The same is true for all other special methods of treatment, and we can but return to the opinion expressed further back that the psychic factor is very great in all

patients with chronic ailments. Once you have acquired the habit of consulting a physician, it is an extremely difficult thing to break away from it.

Therefore, one of the most helpful things that a physician can do for his patients is, to try deliberately to wean them of their dependence upon the physician's help. They need their independence aroused by having their cooperation and their personal efforts trained. They must be accustomed to the thought of "going it alone" and of mastering their aches and pains by their own efforts—*nota bene* after all possibly existing physical impairments have been corrected.

The treatment and the management of chronic patients are difficult problems. They require not only patience, enthusiasm and optimism, they engage not only the medical acumen of the physician but they also test his philosophy, his view of living, his psychic powers—"psychic" in its true sense, not in the meaning of the medium.

There are some men's souls that are so thin, so almost destitute of what is the true idea of soul, that, were not the guardian angels so keen-sighted, they would altogether overlook them.—Beecher.

OUR FAVORITE METHODS

In a recent letter, Dr. Edward H. Ochsner says:

"I believe that nearly every practicing physician of large experience has some one little trick that is of considerable value in relieving human discomfort, if not actually saving life. I believe that, if the individual members of the medical profession of this country could be urged each to write down the one not generally known remedy or medical or surgical procedure which he has found to be of the greatest benefit to him, much necessary suffering could be relieved. Thus, for instance, if I were asked to do this, I would briefly describe the use of Unna's Paint in varicose veins, the correct use of which, I find, is known by a very small percent of the physicians of this country. Why not establish a department in your journal, urging not only your subscribers but others to briefly give their favorite trick? I believe it would be valuable to the medical profession and through them to their clientele."

This idea is very excellent, and Doctor Ochsner is elected as the first contributor to the "Column" which will appear whenever any contributions to it are available. It is up to all our subscribers to supply that material.

Furthermore, whatever method is suggested or described as a particularly successful one, is open to discussion. We shall want to hear from others whether they likewise secure good results and derive much satisfaction. That ought to aid in establishing the merit of such pet measures.

MR. BOK'S PEACE PRIZE

Mr. Bok has offered a prize of $100,000 for the best and most practical plan by which war might be prevented in the future. We are laying a little bet with ourselves that many competitors will submit schemes and none will be promising enough to deserve the prize. We assume that Mr. Bok wants something that is both, practical and practicable. He desires a plan the execution of which actually would *ensure* lasting peace. On the other hand, the Nobel prize is awarded for signal services tending to *promote* world peace. Still, there is a marked difference between "promoting" and "ensuring."

Mr. Bok's offer, very naturally, has interested numerous people and has been made the subject of editorial discussion in newspapers and in other publications. *The Chicago Tribune,* for instance, believes that, some day, a prophylactic for war will be employed just as now prophylaxis of smallpox, of tetanus, rabies, diphtheria, typhoid fever, etc., is practiced. The comparison is not inept; for, that is exactly what ails the world: It is sick. This sickness is not a consequence of the war; indeed, the war constituted the acute attack; the prodromal symptoms of which had been observed by thinking people, also by diplomatists, for years. Now, we are passing through a period of protracted convalescence and it will be strange if some lasting and serious sequelæ do not develop. The most threatening consequence, to our mind, is that of communism which seems to be being fostered in Germany and elsewhere through stress of circumstances and, of course, incited by Bolshevick propaganda.

The fact being recognized that the world is ill, it is in one way easy to prescribe a remedy. Even a remedy that might prevent relapses of the acute attack—war. The commonplace remedies, however, that would first occur to politicians, diplomats, and so forth, unfortunately, have been found wanting and altogether incapable of bringing results. The Hague, the League of Nations, even the proposed World Court, are makeshifts that cou'd not be depended upon to prevent disputes from degenerating into actual warfare, if the provocations and the passions engendered by them were sufficiently intense.

As we see it, there is only one remedy that can solve the problem and that actually can

be administered to nations as well as to individuals. It is a remedy that will not be commonly accepted until the millennium, because it is so absurdly simple and so ages-old as to be almost trite.

Since any proposal looking to the establishment of lasting world peace necessarily must deal with "ifs," it may be permissible to formulate our suggestion in the conditional tense.

We are convinced that, **IF** the remedy that we have in mind were adopted by everybody individually, by every nation collectively, war would actually be of the past. It would be impossible because there would be no occasion for it. That means wars not only between nations but also between individuals. Prisons and law courts would have to be closed; business would progress successfully, actually successfully all around, although there would be no lopsided tremendous fortunes; but, rather, a more equitable and equable distribution of the nations' wealth would result.

The remedy that we propose to make wars between individuals and between nations a thing of the past is:

The general observation of **THE GOLDEN RULE**

A man may live long, and die at last in ignorance of many truths, which his mind was capable of knowing, and that with certainty.—Locke.

INSULIN

In the abstract department (What Others Are Doing, p. 701), several abstracts of important articles on insulin, the new treatment for diabetes mellitus, will be found. We believe that our readers will be interested in the reports that are presented.

OF INTEREST TO SCHOOL DOCTORS

Dr. Edward Tracy's article entitled "An Effort For the Betterment of Epileptic School Children" inaugurates a policy which is not new but merely an extension to the habit followed for years by CLINICAL MEDICINE to promote whatever may be of service to physicians. The work of the school physician is of the highest possible importance. It is not only curative in that it tends to remove remediable irregularities and lesions that may be found in school children but, what is of even greater importance, it is prophylactic, or preventive, insofar as sincere attempt is made to discover the very first beginnings of ailments and to arrest them.

Doctor Tracy informs us that, at the present time, there is no medium in medical journal literature that devotes particular attention to the interests of the school physician. CLINICAL MEDICINE is happy to open its pages to any articles that may deal more or less directly with the work of the school doctor. The Editors invite contributions on the subject and we wish to remind its readers that, but a few months ago (March issue, p. 191), it published a notable contribution of this kind.

We do not consider the school doctor's practice to constitute a specialty. It is a part of the work of the general practitioner. For that reason, we are convinced that such articles as we have referred to will come suitably and properly within the sphere of CLINICAL MEDICINE.

Our readers will aid us materially, if they will communicate to us such lists of school physicians as they have cognizance of.

SOMETHING ABOUT PAIN

The other day, I had occasion to look up the literature on symptoms that the physician is likely to inquire into, on being consulted by a patient. In Thomson's "CLINICAL MEDICINE" (Phila. Saunders, 1918, page 24), the discussion on pain was found to be so well taken, that I have followed it well to reproduce a portion of it for the benefit of our readers. The points made by Dr. Thomson are excellent. The portions of his discussion that are not copied in the following are just as fine and well worth studying. Thomson says:

"The investigation should begin with a request that the patient show just where the pain is felt most, and where it first began. While he is doing so, the gestures which he uses should be carefully noted, as they often afford truer indications than his language does, because verbal descriptions of pain may be extremely indefinite. As a rule, such gestures are characteristic enough to aid materially in the recognition of the particular variety of pain, if not also of the nature of the affection itself which is present, as the following examples will show.

"When the pain is due to inflammation, if external, as with a joint, the patient will avoid touching the most painful part, or he approaches it in a very respectful way. Thus, with an arthritis his hand passes over the joint in a hovering fashion. If deeper seated, the gestures are often expressive of the varying kinds and distribution of the pain, according to the texture inflamed. Thus, the diffused

soreness of a mucous-membrane inflammation causes the gesture of bronchitis to be made with the whole hand laid on the sternum, and then passed over and across the chest. A similar movement of the hand across the abdomen never means a peritonitis, but a catarrhal intestinal inflammation. With pleurisy, on the other hand, the tips of the straightened fingers are used to indicate the stabbing nature of the pain. In peritonitis, also, the tips of the fingers are used, but brought down with more caution than in pleurisy. In the localized pain of commencing appendicitis, the open hand is used, as with an inflamed joint. In pleurodynia, the whole hand is pressed firmly to the side, to prevent movement of the ribs. In rheumatic fever, the pointing by the patient to the epigastrium or to the xiphoid cartilage, especially if followed by a movement from the precordium upward or into the left arm, is significant of cardiac inflammation. So also the gesture in gastritis, whether acute or chronic, is wholly different from that in colic. Inflammatory pains about the head may have very characteristic gestures. The use of one finger-tip to localize it on the scalp is strongly significant of intracranial syphilis. The finger-tips passing up the side of the face and stopping on the scalp an inch below the sagittal suture indicates pain ascending from a tooth, and should not be mistaken for a trigeminal neuralgia. In conjunctivitis, the hand is laid over the eye. In iritis, the finger is pointed toward it, not touching it, and then passed up the forehead to the inner side of the nose or to the malar process. In glaucoma, the gesture may be reversed, as if the pain were emerging from the orbit. All these gestures differ entirely from those of head-pains not inflammatory. Meningitis, whether cerebral or spinal, is significantly indicated by absence or suppression of gesture, for reasons to be noted further on. The exceptions to this are in some cases of tuberculous meningitis. But the gesture of myelitis, with both hands passed from the back across the abdomen, to describe the cord or band-like sense of constriction, is almost itself pathognomonic.

"On the other hand, the gestures indicating the seat of the greatest pain produced by pressure, as by tumors, abscesses, etc., or cramps, markedly contrast with those of inflammatory pains in showing no apprehension in touching or moving the part. Here the locality indicated at first by the gesture is of importance to note, and whether, on repeating the question, the same place is again started from, because the patient's hand then moves in a fashion expressive of the extension or radiation of the pain from the original focus, although he may describe the pain as equally present at some distance from the spot first pointed out. Hence, his unconsciously repeating the sign with which he commenced is of much significance. Thus, a patient with a growth springing from the lumbar vertebrae always first pressed the point of two fingers deeply into the abdomen below the umbilicus, while the fingers of the other hand moved over the sacrum, where he insisted that his pain chiefly was. A fixed pain in the back, caused by an aneurysm, is often indicated by the extended thumb, and likewise the pain preceding herpes zoster; but no spinal inflammatory pain will elicit such a gesture, nor will the pains of socalled spinal irritation do so.

"In stretching pains, such as in biliary or renal colic or cramps, as in lead-colic, the contrast to inflammatory pains is shown by the forcible grasp or pressure which the patient makes on the abdomen, while the characteristic radiations of the different varieties may be very plainly represented. Even when the pain has ceased, the gesture descriptive of what he had experienced may be equally conclusive as to their nature.

"The gestures expressive of simple neuralgic pains contrast throughout with those of inflammatory pains. A functional occipital headache is shown by a friction-like movement of the hand from the neck up, sometimes followed by pressure on the eyes with the fingers. So the hands are used with the firmest pressure in temporal or frontal neuralgias, or the patient may tightly tie a handkerchief around the head. This proneness to grasp or to press as well as to move the aching part is characteristic of neuralgic pains everywhere in the body. The gestures are also valuable from their indicating the shifting character of neuralgic pains, enough, at least, to distinguish them from the more fixed pressure-pains of tumors. Special characters of neuralgic pains are frequently described by the gestures, as in the darting pains of tabes.

"Subjective pains, as in hysteria, are very characteristic, in their being more numerous and varied than true objective pains can be, and, secondly, in the inconsistency of the gestures with the often highly wrought description of them by the patient. Both language and the manner of the patient are more like telling the tale of a woeful past experience than of a present reality."

Leading Articles

The Role of Endocrinology in Epilepsy*

By MAXIMILIAN KERN, Chicago

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THE true historian, who could induce us to pause long enough in our serious endeavors to explore untrodden fields in the domain of medicine for the purpose of historical retrospection, would fascinate us with the demonstration that medicine and contemporary thought have marched on side by side.

Beginning with primitive man, he would show us that the entire psychology dominating his life was no more and no less than a composite of fear and brutality. With such limitation to interpret the complex phenomena of life, disease caused fear. Sickness was the visible handiwork of an invisible or, rather, intangible antagonist, who was no part of man's family or clan, and with whom he had to grapple by brutal methods as the only way to rid the sufferer of the intruding bad spirit or creature of similar conception of primitive imagination.

We are led to see that, later, as man rose to a higher mental plane, he sought solace in religion; and, as he looked upon the religious leaders as particularly gifted and supernaturally powerful men, these became his helpers in time of distress. Having the treatment of disease thus forced upon them as part of their priestly functions, and seeking in the nearby flowers, roots or herbs means to produce certain effects on the body, which became known to them through the simple process of observation, and noting and comparing these ever-recurring effects, their experiences constitute the dawn of modern botany and pharmacognosy.

What matters it that it required centuries to free these methods from occult mysticism? A beginning was made, and, once man's brain was enabled to unfold its wings, its halting flights gradually extended boldly and energetically to dimensions limited only by the laws of nature.

Freed from the fear of the supernatural, the desire to increase our knowledge of things mundane pushes aside old barriers; the dreaded dead become mere dead bodies hiding within them the clews to the causes of their extinction of animation, and the beginning of the study of anatomy is the natural result. As the inquisitive observers go on and on, collating facts or endeavoring to explain obscure phenomena, histology, chemistry, physiology, and later pathologic physiology assume definite form; not speculative or philosophical but as concrete observations which eventually assume the dignity of exact naturalistic disciplines virtually in the same category as mathematics.

Endocrinology, the Pinnacle of Medical Advance

Coming to our own times, we can in a few moments recall the unbroken search for the means to cure disease, seeking for remedies not only in the three kingdoms but in the bodies of the sufferers themselves, and we reach the pinnacle of medical advance in the study of the inner secretions of man—endocrinology.

We have only arrived at the threshold, but we have already learned sufficient to justify the least sanguine among us to stand in awe before the portcullis that hides the tremendous possibilities for good.

Unlike many other discoveries in medicine, endocrinology did not take the profession by storm. While certain physiologic and pathologic facts relating to the ductless glands have been known to all of us for a long time, it is but within the past two or three years that the endocrinologic interpretation of many obscure pathologic processes is receiving the serious attention of many conservative thinkers and observers.

While, today, it is regarded as almost too elementary to discuss such subjects as dysthyroidism, dyspituitarism and dysovarianism, it

* Read at the 79th Annual Convention of the A. I. H., Atlantic City, N. J., July 3, 1923.

is a fact that, in the attempts to seek in endocrinology some light on many other obscure and unexplained disease phenomena of the human body, the clinician is still ahead of the laboratory worker.

This, however, is not intended to convey the impression that the laboratory worker is useless to the clinician. Indeed, as will be seen later, the very contrary is the case.

The Riddle of Epilepsy

I deem it a great privilege to be permitted to present for your consideration a brief clinical study of the relationship between endocrinology and a disease justly dreaded by the medical profession and the laity alike—epilepsy.

When one realizes that this peculiar disease represents a spectacle of keen and apparently normal human intellects being virtually crushed for more or less prolonged periods, frequently without warning or tangible cause, then the tragedy, of a brilliant fellow-man writhing with foaming mouth and distorted features, to awaken later somewhat disoriented, is great enough to stimulate the greatest clinicians and laboratory workers to find the means for ridding mankind of this affliction. What wonder that unenlightened mankind saw in such spectacles the proofs of obsessions by evil spirits? We have documentary evidence that, as late as August 15, 1891, in enlightened Germany, the expulsion of the devil from the body of an epileptic boy had been successfully accomplished by a monk who, by the way, solved the etiologic problem in the simplest imaginable manner—the father of the boy, a Catholic, had married a Protestant woman!

That writer who would go to the trouble of publishing in collected form the various beliefs by even modern nations and races, that epilepsy means a struggle with evil spirits, could produce a highly instructive volume. And it is plainly recognizable that, when the disease happens to affect a priest or similar functionary, the sufferer is revered because he struggles with the devil to protect his flock. Such is human credulity!

But, we of the scientific world have stood by virtually impotent; for, neither our general clinicians nor specialistic neurologists have been able, by drugs or other measures, to prevent or cure, nay, even to ameliorate the disease. While the bromides and luminal and similar preparations have a certain soothing effect, we cannot ignore the circumstance that many intellectual patients prefer to suffer from the seizures rather than exist under the constant influence of drugs, and, what is more important still, the long continued use of these drugs is certain to prove harmful to the human economy.

What has science done for epilepsy, and what are the scientific possibilities of the future?

Before proceeding to survey the scientific attainments of the past and to speculate on the scientific possibilities of the future, it is essential that we are all agreed on the more or less accepted conception of epilepsy, to prevent misunderstanding. It is further essential that we eliminate for our particular purpose any form of epilepsy caused by a definitely established pathology, as not falling within the province of this essay, and restrict our discussion to the form commonly known as idiopathic epilepsy.

Causes of Epilepsy

The division of this malady into the classical subforms of *grand mal* and *petit mal* is of no particular moment to us, because they represent merely degrees of intensity of the seizures; but, what is of decided interest to us is, the many causes which have been accused of responsibility for the disease.

We know that the predisposing causes have been studied with care and that alcoholism, syphilis and other constitutional diseases, in the order named, have been accepted as exerting tremendous prenatal influences on the disease. In addition to the hereditary influence, there is scarcely an abnormality of the human body which has not been accused as a "probable" cause of epilepsy, the *modus operandi* being explained by infection or by reflex effect.

Even the views promulgated by Freud and his followers have been applied to explain the etiology of the malady under discussion, and it is interesting to note that these observers are firmly convinced that epilepsy is purely a defense reaction—a conflict between desire and non-realization, which in turn creates a "brain storm," and that the easiest way out of the situation is *via* the characteristic seizure, or so-called "fit."

Related somewhat to this conception is a view of idiopathic epilepsy which very recently has been promulgated as a doctrine of "psychic equivalent" which, as a matter of fact, is tantamount to a state of somnambulism. In this condition, the patient is looked upon as a mere automaton whose consciousness is lost and who performs all kinds of automatic acts, such as walking or driving

and who, at times, exhibits uncontrollable violence, not excepting homicide.

The patient has no recollection of anything between the onset and termination of the attack which may last from a few seconds to days. Any one patient may have all of these forms or they may alternate, some victims suffering nights only and others both, day and night. When patients have as many as two hundred attacks in any one day, the condition assumes the dignity of a *"status epilepticus."* On the other hand, it is conceded that patients may have but one attack in a lifetime.

The Endocrine Influence

Gowers was probably the first to show, twenty years ago, that the ductless glands play an important role in epilepsy. He called attention to the fact that the majority of cases of epilepsy have their beginning during the period of puberty. This observation has been corroborated by a number of competent workers who have also pointed out that not all the blame should be foisted on the sexual glands, but that other ductless glands, singly or in combination, should be charged with a share of the responsibility. Hypo-, hyper- or dysfunction of the glands; any of them is allegedly capable of producing idiopathic epilepsy.

Time and space forbid entering into detailed accounts of the newer work accomplished in this direction by such men as Beverly R. Tucker, Cushing and others, and it must suffice for the present to show that the result of their work seems to establish that a number of cases of idiopathic epilepsy are caused by hypo- or by hyper-function of the pituitary, thyroid, parathyroid, adrenals, as well as the sexual glands, singly or in combinations.

If this be so, then we are approaching the glorious goal of affording relief, if not permanent cures, to a class of unfortunates for whom medical science has been able, hitherto, to give palliatives only.

The Clinical Test

The sole test is the clinical test. It is a source of great pleasure to me to be able to submit four cases of undoubted idiopathic epilepsy in which I made judicious use of endocrine therapy with gratifying results. I present them as briefly as possible, and add a fifth case of doubtful diagnosis, with therapeutic failure.

Case 1.—Miss S., aged 19. Father a confirmed drunkard, one brother an inmate of a reform school, one sister died from pneumonia when a young child.

The patient was a poor pupil and left grammar school at fifteen, having been unable to graduate. About a year later, she had her first menstrual period and, three days later, suffered her first epileptic seizure, which recurred more or less regularly every few months and lasted a few minutes, being followed by extreme prostration.

On examination, it is noted that the patient is rather pale and waxy in appearance, mammary glands are underdeveloped, hair dry and of doubtful hue, skin dry, nails brittle and cracked. The patient shows a slight hair growth on the face and has a peculiar voice differing from the usual feminine one. She has some pyorrhea alveolaris.

Heart and lungs are normal. The pulse is slow. Temperature subnormal. The laboratory investigation reveals:

Urine—Specific Gravity 1010. Strongly acid. Urea, 2.5. Indican 3 plus. Albumin, faint trace. Sugar, absent.

Sediment shows many pus and squamous epithelial cells, but no casts.

Blood—Wassermann negative.—Blood count shows

Erythrocytes	4,300,000
Leucocytes	9,000
Small Lymphocytes	30%
Large Lymphocytes	10%
Polymorphonuclears	50%
Large mononuclears	6%
Eosinophiles	3%
Transitionals	1%
Hemoglobin	7 %

Case 2.—V. M., aged 6, female. Her father was a pronounced alcoholic who underwent a "cure" to rid himself of the habit, successfully, and who since has risen high in the commercial world. A sister of the mother's is said to have had epilepsy.

Her first seizure occurred when the little patient was about four years old, at four o'clock in the morning, while she was apparently sound asleep. The attacks recurred at first every month, and later with still greater frequency. Each seizure, characterized by outcry, gritting of the teeth, convulsions and clonic contractions, foaming, etc., lasted about fifteen minutes.

Physical examination showed a rapid and irregular heart-beat, tenderness of the abdomen, and a small sella turcica and a shadow around the glenoid process. The urine contained a trace of albumin.

The blood in this case was absolutely normal, except for hemoglobin, which showed only 60%.

This child had been under the care of a pediatrician and neurologist without perceptible benefit.

CASE 3.—S. T., aged 32, musician, has a negative family history. He suffered from the usual diseases of childhood and had typhoid fever at the age of sixteen. He claims to have masturbated since childhood and abandoned the habit when eighteen years old.

He complains of general weakness, anorexia, impotentia coeundi, and of seizures which are typical of idiopathic epilepsy of the *grand mal* type. The seizures last about fifteen minutes and have occurred about every two weeks for the past eight years. He claims that the seizures are relatively longer and oftener during the summer months.

Physical examination reveals nothing specially abnormal, except for a very slow pulse, fine tremor of the fingers, and occasionally an involuntary twitching of the facial muscles. There is some tenderness of the abdomen, which may be due to constipation. He claims to urinate only once a day, excepting during the day following the attack, when he urinates freely. Chemical examination of the urine reveals nothing abnormal, and a quantitative examination could not be made for external reasons.

The blood count shows:

Erythrocytes	4,500,000
Leucocytes	7,000
Polymorphonuclears	55%
Small Lymphocytes	25%
Large Lymphocytes	18%
Mononuclears	2%
Eosinophiles and Transitionals	0

CASE 4.—Mrs. H. L., aged 29. Formerly a nurse in training (discharged because of her affliction), had her first seizure about six years ago. These seizures, which lasted about half an hour, would recur once daily for two or three months; then she would experience a remission of the attacks for about four months, after which the periodicity of the attacks recurred with regularity in the described manner. In the months during which she suffered from seizures, she ceased to menstruate.

It is interesting in connection with this case to know that, aside from the usual treatment for epilepsy by several physicians, she was treated, for some time previous to the first attack, for exophthalmic goiter.

Her history does not show that any exact method to confirm the diagnosis was used. Nevertheless, a metabolic test made by me showed minus 28, or a distinct hypometabolism, which indicates a hypothyroidism. Whether this was the result of overtreatment for alleged exophthalmic goiter, or whether there never existed such a condition and the hypothyroidism exists independently of any treatment given her years ago, is difficult to establish.

Her blood, urine and general laboratory examination revealed nothing noteworthy in connection with her epilepsy. The radiograph showed a very small and clouded sella turcica.

CASE 5.—Mr. N., aged 26, electrician. Family history negative. Personal history, the usual diseases of childhood. Was injured in a football game about eight years ago, which left him with constant headaches for about two years.

A typical epileptic seizure occurred first about three years ago, and these attacks recurred once or twice daily for a month, being followed by several months of freedom, except for headaches, when the attacks recurred.

Physical examination revealed nothing abnormal. The blood findings are:

Erythrocytes	5,000,000
Leucocytes	8,800
Polymorphonuclears	50%
Small Lymphocytes	35%
Large Lymphocytes	15%
Eosinophiles	1%
Transitionals	1%

All the above cases were successfully treated with combinations of thyroid (small doses) pituitary, either anterior or posterior or both lobes, ovarian and orchitic extracts. There can be no doubt whatever, in view of the length of time during which these four patients have been free from any phenomena of epilepsy, that absolute cures have been brought about for the time being, while on purely theoretic grounds is may be held that not sufficient time has elapsed to speak of permanent cures. This after all remains a purely academic problem. The exception, as already stated, is Case 5, in which a sister assured me that organotherapy impressed her as having rendered her brother's condition worse, if anything.

This exception, it must be confessed, carries no clinical lesson to me, because I am not certain whether this case actually is of the idiopathic type; possibly, the trauma played an important role as a causative factor, and this in spite of the fact that the blood count shows a high percentage of mononuclear lymphocytes.

The Importance of Laboratory Work

Something has been said before about the value of laboratory work in connection with endocrinology. This is made particularly evident in the cases given, by a study of the blood findings. It will be noted that, in all cases where differential blood counts are given, there is a high percentage of mononuclear

lymphocytes. In one case, the eosinophiles are increased, which fact is interpreted by Patterson to mean that there is usually an endocrine involvement. According to that author, in conditions not of endocrine origin, a leucocytosis is the rule, while in hyper- and hypothyroidism, as well as in pituitary disturbances, we encounter a mononucleosis.

From the standpoint of the blood findings alone, hypopituitary disturbances may be divided into (a) frank cases with hypereosinophilia and mononucleosis, including both, lymphocytosis and a slight endotheliocytosis; (b) less pronounced cases which show only a sustained mononucleosis of the above type, and (c) borderline cases in which the blood picture follows a sliding scale and has only prognostic significance, if any.

No one better than myself appreciates the sketchy character of the above presentation. It has not been my aim to discuss the treatment of epilepsy with organotherapeutic preparations, even though these were used exclusively in the reported cases, but rather to point to the relation of endocrinology to epilepsy.

It is fully realized that much clinical and laboratory work must be accomplished ere we can speak of light having been shed on this acutely interesting problem. But, as has already been said, the road is open, and it is now our duty to go on and on until we reach the cherished goal.

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30 N. Michigan Blvd.

An Effort for the Betterment of Epileptic School Children

By EDWARD A. TRACY, Boston

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So far as the writer is aware, the first attempt to investigate systematically the problems connected with epilepsy in school children is that made in Boston, during the past five years, under the direction of Dr. William H. Devine, Chief of Medical Inspection in the Boston Public Schools. A sketch of this work done in Boston, by the school physicians and school nurses, will interest all concerned with the health of school children.

In 1919, the writer, as a result of two years' special investigation in three Boston school districts, comprising 2768 pupils, found ten children suffering with epilepsy. This gives the proportion of 3½ epileptics per one thousand school children. Dr. Shanahan, Superintendent of the Craig Epileptic Colony, New York State, has stated that there are three epileptics in every thousand individuals, and he regards his estimate as a moderate one.

The result of this investigation led to an attempt to extend the survey of epilepsy into the other school districts. The plan devised for this purpose was as follows: The child with symptoms calling for special investigation was brought for diagnosis to a central clinic. Inasmuch as the school nurses were already, in the course of their duties, bringing children to the Forsyth Dental Infirmary, it was deemed desirable to have the diagnostic clinic in the same place, for economy of time; and the Trustees established the clinic, at Dr. Devine's request. It was thought, at the time when this plan of completing the survey was formulated, that a more efficient plan would be, for the neurologist to examine the child in its school; but such a plan was not then feasible.

This projected survey of epilepsy, in all the school districts, has not been completed. It has the active cooperation of most of the school physicians and nurses. What is most required for its success is the active and intelligent cooperation of the teachers and parents, by bringing to the school doctor's attention those children in his school district who are manifesting symptoms of epilepsy. It is believed that, from now on, this intelligent and active cooperation on the part of parents and teachers can be bespoken. For, as will be shown, the early stage of the disease manifests itself by signs and symptoms, readily detectable by these natural observers of the children. Furthermore, it has been shown

that this early stage of epilepsy is readily curable, even after the onset of convulsive attacks.

Besides this survey of epilepsy in the Boston schools, still under way, considerable research work has been done on this disease during the past five years, in the clinic. It has been established, by careful history-taking in a large number of cases, that there is an incipient stage of the disease, manifested by the occurrence of fainting spells, slight lapses of consciousness, sudden pallors, sudden tremblings, sudden weaknesses, sudden attacks of nausea without any food relation. This incipient stage of epilepsy lasts from six months to two years, before the onset of the first attack of convulsions.

Research work in the clinic has helped to shed light upon the nature of the disease. It is now known and demonstrable that, in epilepsy, the vegetative nervous system (especially the sympathetic branch) is diseased; the diseased condition of the sympathetic fibers being shown by abnormal reactions to measured stimuli and by chronic white spots in the skin (vasoconstriction spots). Research work in the clinic has, furthermore, demonstrated that chronic epileptics with frequent convulsions suffer from a calcium deficiency. This was determined by x-ray investigation, the bones of the chronic epileptic showing an increased permeability to the x-rays, when compared with the bones of a normal control; both, controls and epileptics, being subjected to the identical x-ray exposure. This finding of a calcium deficiency in chronic epilepsy is important for the indication it gives for the treatment of this condition, the indication to give plenty of calcium. And, likewise, this finding points to the importance of forestalling a calcium deficiency in the diet of children—lest the evolution of epilepsy results.

Scientific investigation combined with clinical observations clearly demonstrate that idiopathic epilepsy (i. e., epilepsy not symptomatic of a brain lesion) is a progressive disease with known etiological and pathological factors that are controllable; hence, its ready curability in the incipient stage.

This early stage of epilepsy can be suspected when the symptoms already mentioned are present in the child, and when a child shows chronic white spots on the arms or face (due to active vasoconstriction). Not every white spot found on the skin is of serious import; many such are ephemeral in character and need cause no apprehension. Even in its incipient stage, epilepsy can be accurately diagnosed by the objective signs present that accompany the disease; certain abnormal vasomotor reflexes, and chronic vasoconstriction spots.

When parents and teachers learn of these facts, they will, undoubtedly, eagerly cooperate with the school doctors and nurses, and the betterment of epileptic school children will become as much a matter of course as the betterment of children with dental or other defects. While epilepsy, in number of cases, cannot compete with other defects in school children, yet the gravity of the disease, untreated, more than compensates for this numerical inferiority. No disease is to be more dreaded; the epileptic is always in danger of bodily injury from sudden lapse of consciousness; and the progressive character of the disease, not realized by many, can be appreciated by visiting our Monson State Hospital. Several buildings there are filled with patients in the last stage of the disease, dementia.

The objective evidence of the later research, that has shed important light on the nature of the disease, epilepsy, and which consists of recorded vasomotor reactions, numerous photographs of chronic vasoconstriction spots, x-ray films showing calcium deficiency, is being collated, for presentation to the medical profession, together with numerous cures resulting from treatment based upon the newer knowledge of the disease. A part of this research has already been given to the profession in a paper entitled, "Incipient Epilepsy: Its Diagnosis and Treatment," read at the Boston meeting of the American Medical Association, and published in the *New York Medical Record*, for March 11, 1922.

The Chemistry and the Specific Action of Codliver Oil

By H. ISCOVESCO, Paris, France

THE remarkable action of codliver oil, in rickets, incipient tuberculosis and in conditions formerly known as scrofula and lymphatism, has called forth considerable research. The work done in recent years on the antirachitic Vitamin, by such American scientists as McCollum and Davis, Osborne and Mendel, McArthur and Luckett, Hess and Unger, Funk and Macallum has revived active interest in the problem.

In 1888, two French investigators, Gauthier and Mourgues, succeeded in extracting from codliver oil many organic bases, such as morrhuine, asellin, etc., by treating the oil with alcohol at 35° C. (95° F.) containing 5-percent of oxalic acid, followed by treatment with lime. To these bases, they attributed the specific action of codliver oil.

We have learned since then that the bases of Gauthier and Mourgues do not possess any of the properties attributed to them. The method employed permitted only the extraction of the nitrogenous bases liberated by the chemical change in the oil. It is easy to satisfy oneself, in analyzing oil treated in this manner, that it contains nitrogen and phosphorus; and that, the older and the more changed the oil, the larger the quantities of such bases that can be extracted from it.

I have been occupied with this question since 1908 and my first results were published in January, 1914[1]. Many authors, among whom I cite only Stoltzner, Freudenberg, Wackeret, Beck and (more recently) Zucker, Pappenheimer and Marion Barnet, have attacked this same problem without apparently knowing my work which preceded theirs.

The method very often used has been the saponification method. This is certainly the worst that could be used in this case because it is too coarse. It destroys the oil and all of the unstable and most interesting substances that are to be found in the oil.

The interpretation of results that one gets with codliver oil on animals with experimental rachitis have often proven contradictory, because the variabilities in the character of experimental rachitis are so numerous that one ought to be very cautious before forming conclusions. An excellent résumé on this subject can be found in the monographs of Funk[2] and Ragner Berg[3].

The first question which naturally comes to mind is the following: Is there a fundamental chemical difference between codliver oil and the ordinary pure oils?

To this question I am able to answer categorically, "Yes." And this is how I have been able to demonstrate this fact:

A given quantity of codliver oil is agitated with one-quarter of its volume of absolute alcohol for at least one hour. An emulsion results which is left standing from twelve to twenty-four hours. At the end of this time, there is noted a complete separation into two layers: one formed by the oil and the other formed by the alcohol retaining some substances extracted from the oil in solution. The alcoholic solution is decanted and condensed at a very low temperature until it reaches a syrupy consistency. The syrup extract is treated with an excess of cold acetone. On filtering this, a yellowish white, pulverulent precipitate is left which is dried in vacuo, for, it is very oxidizable. It is then redissolved in chloroform and reprecipitated by acetone. A substance is finally obtained which has all the characteristics of a lipoid, containing phosphorus and nitrogen and no free base.

Now, this fact strikes me as extremely important: codliver oil is the only one of the oils that contains this lipoid. All the pure oils which I studied, applying the same method of extraction, proved this absolutely. With olive oil or others, the alcohol changed the fats into fatty acids entirely.

The method which I have indicated is so simple and definite that it constitutes a rapid means for revealing a commercial falsification of codliver oil.

I have no doubt that the antirachitic substance is nitrogenous Several authors are of the same opinion. I may add that every codliver oil washed in the way described by me differs otherwise from any vegetable oil only in that it contains cholesterin; and surely cholesterin has no antirachitic action whatsoever.

An oil that has been treated in this way no

*Translated from the French original.

[1]Iscovesco, *C. R. Soc. Biol.*, 10, 17, and 24, January, 1914.

[2]Funk, Die Vitamine (Munchen and Wiesbaden, p. 187-193).

[3]Ragner Berg, Die Vitamine, Hirzel, Leipzig, 1922.

longer contains nitrogen or phosphorus; for, all of the nitrogen and phosphorus contained in it originally (before treatment) is found in the lipoid that has been isolated. Moreover, it has no longer any special therapeutic action. If one saponifies an oil that has been thus completely washed, it will be found that no nonsaponifiable substance can be reclaimed. This can prove only that saponification of the lipoid has taken place; in other words, its destruction. The proof of this is, if the isolated lipoid is saponified, there result some relatively important quantities of nonsaponifiable matter in which is found almost all of the nitrogen contained originally in the oil.

The nonsaponifiable portion is made up of one or more bases which are certainly not choline, but which I have not yet been able to characterize.

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The experiments which I made afterwards on man and animal have proven:

1.—Fresh, pure codliver oil, completely washed with absolute alcohol, is deprived of all antirachitic and therapeutic properties.

2.—The lipoid of codliver oil possesses in maximum and exclusively the specific constituent of the oil.

3.—The nonsaponifiable portion seems to have a certain antirachitic action but in a much inferior way than that of the lipoid.

This lipoid has not only a remarkable action in rickets but, when administered to young growing animals, it causes a very noticeable increase in weight.

It is possible that the nonsaponifiable part, made up of one or more amino bases, is the specific antirachitic agent, but we must admit that this activity is much greater when the amino base is in the lipoid molecule than when it is free. This case is not unique. We know, for example, from the works of Dale[4] and also of R. Hunt[5], that choline is much more toxic in an ether or an ester state than when it is free.

Following these first researches, I naturally wanted to know the source of this lipoid of codliver oil. I found that, instead of forming spontaneously in the oil, it existed in the liver of the cod already formed, and that it was carried over into the oil during the process of extracting the oil from the liver.

I was led thus to study the lipoids of codliver oil first; later those of the other animals.

I isolated by the general method, described in the C. R. *de la Société de Biologie*, a lipoid which is found in great quantities in the liver of the cod and in smaller quantities, but absolutely constantly, in the livers of all the other animals that I studied (pig, sheep, horse, bull). This lipoid is absolutely identical with that of codliver oil.

In fact, it has the same appearance, the same consistency. The point of fusion is identical (70° Centigrade). Both are soluble in absolute alcohol, in chloroform, in ether, and insoluble in acetone; so that a very complete purification is possible.

The liver lipoid, like the lipoid of codliver oil, is a diamidomonophosphatid.

Dr. Westerman, who was good enough to make a comparative chemical analysis of the two lipoids, found some extremely close figures in both lipoids for carbon, hydrogen, nitrogen and phosphorus. The liver lipoid has exactly the same biologic properties as the codliver oil. Used especially in rickets, it gives more rapid results than codliver oil in comparatively larger doses.

The use of the liver lipoid has become greatly extended, recently. It is used more and more in rickets, lymphatism, incipient tuberculosis, and in definite undernourishment of children suffering from insufficient or faulty alimentation. These conditions are very prevalent in certain classes of the population of the larger cities.

The administration of the liver lipoid causes a very rapid increase in weight and an amelioration in growth.

In adults who are in the first stages of pulmonary tuberculosis, many doctors have observed some important improvement in the general condition during the first month of treatment.

The liver lipoid may be administered hypodermically in doses of from 2 to 4 centigrams in an oily solution; or orally. This last method of administering is preferable and gives the best results, because the doses given in this manner are larger (from 15 to 20 centigrams a day).

We know from the researches of Salkowski[6] that the lipoids administered by mouth pass the digestive tract without change and are absorbed.

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[4]Dale *Jour. of Pharm. and Exper. Therapy*, 1914, V. VI, p. 147.

[5]R. Hunt, *ibid.*, V. VII, p. 301.

[6]Salkowski, *Bioch. Zeitschr.*, V. LI, p. R. P. U.

The Advantages of Sulpharsenol in the Treatment of Syphilis

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"I WILL visit the sins of the fathers upon the children unto the third and fourth generation of them that hate me."

Ever since I came to know much about disease, I have thought that this part of the second commandment was a direct reference to syphilis in the Jewish race of the period. We never can know the birth-place or age of this greatest of scourges of the human race.

Professor Ide, of Louvain, closes the chapter on syphilis in his recent treatise on therapeutics, with these words:

"Soon, neosalvarsan will be replaced by substances that are more active, less toxic and more easily administered."

In CLINICAL MEDICINE for September, 1917, I wrote an exhaustive review of Luargol in the treatment of syphilis, with which remedy I was, and still am, favorably impressed; Sulpharsenol is, equally, a modification of "606," but has the advantage of permitting subcutaneous or intramuscular in place of intravenous administration.

This product was created and is prepared by Dr. Lehnhoff-Wyld, of Paris, and has been very thoroughly tried out in the wards of St. Louis and St. Lazare Hospitals (Paris), by Drs. Levy-Bing, Jerbay, Duraux, Emery, Marcel Pinard and Pierre Giraud and others who will later be quoted, and would seem to have won for itself the reputation of a step in advance in the treatment of syphilis.

The very complete study published by the discoverer[1] and the first experimenters will make it unnecessary here to go into a detailed description of its chemical composition, which is represented by the formula C_{12} H_{11} AS_2 CH_2 OSO_2 Na.

Sulpharsenol is a sodium salt of monomethyl-sulphate with the base of arsphenamine. It approaches to "914" (Luargol) by its lateral chain, but differs in that it contains an atom more of oxygen.

In spite of the fact that the percentage of arsenic in sulpharsenol is practically the same as "914," it yet appears to be twice as active in equal doses. The rabbit shows the following comparative tolerance, per kilogram weight, for the remedies named; arsphenamine, 7 cg.; neoarsphenamine, 8 cg.; galyl, 10 cg.; luargol, 10 cg.; sulpharsenol, 20 cg. It stability is much greater than that of either arsphenamine or luargol.

The tremendous percentage of increase in syphilis, that has been left us as one of the consequences of the war, makes it extremely necessary that we should have a remedy that can be readily applied by every practician without the need of special training and without the fear of any disquieting consequences. Sulpharsenol would seem to supply this requirement. The only precautions necessary are, that the hypodermic injections must be made antiseptically, which is necessary in the employment of any hypodermic injection, and that the solution should be injected into the deep muscular tissue of the gluteus maximus. It cannot be denied that, even for an experienced practitioner, intravenous injections present, at times, annoying difficulties, especially with women of rather full habit and very fine, imperceptible veins; also in unmanageable children; it is, therefore, of tremendous advantage to have a satisfactory remedy that can be injected directly into the muscular tissue.

The principal aim in all the researches made in intramuscular injections is, to find a drug combination that is as active and as painless as the method of intravenous injections, without having either its drawbacks or its dangers.

The drawbacks, although of minor importance, are still very real and cannot be overlooked. The intravenous injection is a small operation and comparatively simple in the hands of an experienced operator, but there is a certain knack attached to the procedure which necessitates a considerable practice to acquire. The operator who is not familiarly accustomed to the procedure feels always a sense of hesitation, although it may not be apparent. Another drawback, which is always repugnant to the spectator who is almost invariably present in private practice, and equally repugnant to many practicians, is that, if the puncturing of the vein is properly done, it is performed with the open needle in the hand, from the end of which there is a slight flow of blood. This is distasteful and to many people disquieting.

I am satisfied that the arsenical remedies will be much more generally used when it is

possible to administer them by subcutaneous and intramuscular injections.

The history of accidents that have attended upon the intravenous injection of the arsenical remedies (shock, nitritoid crises, anaphylactoid troubles), is too well known to require description here. The fact that any of these accidents are so rarely encountered, on employing the subcutaneous or intramuscular routes, constitutes one of the most valuable and attractive factors in this form of medication. From a therapeutic standpoint, one of the most favorable points is, that the remedy is absorbed and eliminated slowly, giving a more continued action; which is particularly important in the old or retarded cases.

The published reports on sulpharsenol indicate that it has no contraindications and that it can be used at every stage and in every form of the disease.

Preparation of the Solution

Sulpharsenol is dissolved in distilled and sterilized water in the proportion of 0.06 Gm. in 1 Cc. of water, and this solution can be made directly in the ampule, after opening, when the dose to be injected is not greater than 0.24 Gm. When the dose to be injected is larger and the patient is perfectly tolerant, the sulpharsphenol is dissolved in the proportion of 0.12 Gm. in 1 Cc. of water.

It dissolves immediately if the mixture be slightly shaken. This can be done without danger as the product is practically unalterable by air.

Localization of the Injection

The solution should be injected deep in the buttock muscles, care being taken to avoid the course of the sciatic nerve.

The Doses Given

The rule of the treatment is as follows: First injection, 0.06 Gm., followed by 0.12 Gm., 0.18 Gm., 0.24 Gm., 0.30 Gm., 0.36 Gm., 0.42 Gm., 0.48 Gm. There should be two or three days' interval between the doses and the individual injection should not be pushed beyond the quantity of the last dose named, the object being a continuous action of the remedy to the limit of tolerance of the patient.

Levy-Bing believes that the size of the dose is subordinate to the frequency of injections which, in these graded doses, should never be less frequent than three days' interval; in most cases, a continuation of the treatment with this interval at the maximum of 0.30 Gm. will be found to give satisfactory results.

In some patients, the injections can be given every two days and, in some, a greater number of injections is required than in others.

The practitioner has in this remedy a pliable method at his disposal which he may modify as he deems necessary and which can be adapted to the most divergent of cases.

Tolerance

Local: In most cases, the injection is followed by no pain. There is, however, in some patients, especially in men with close and firm muscular tissue, a feeling of heaviness, sometimes rather marked and sometimes accompanied by slight muscular pain. These manifestations rarely last more than twenty-four to forty-eight hours.

General: So far, the authors have never observed any general trouble, either immediate or delayed, following the intramuscular injection.

Some patients who, after the intravenous injections of this remedy, manifested a degree of reaction that could even equal a nitritoid crisis have received stronger doses by intramuscular injection without any inconvenience whatsoever.

Therapeutic Results

Levy-Bing and Gerby have made a report of two hundred cases from which I select the following.

Case 1. Primary syphilis. Male patient, 28. December 2, 1917. Chancre of the glans, marked induration, five days old, slight right inguinal adenopathy. The ultramicroscopical examination showed treponemas in abundance. Bordet-Wassermann and Hecht reactions completely negative.

December 2, intramuscular injection, 0.06 Gm. sulpharsenol in 1 Cc. of water.

December	3,	0.12 Gm. in same manner.
December	5,	0.18 "
December	7,	0.24 "
December	10,	0.30 "
December	13,	0.36 "
December	17,	0.42 "
December	21,	0.30 "
December	26,	0.30 "
January	5,	0.30 "

The cicatrization of the chancre was complete by December 8.

The seroreaction remained negative at all times.

Case 2. Primary syphilis. Male patient, 32. December 4, with a chancre, at the meatus, of eleven days' duration. Ultramicroscopic examination positive.

Bordet-Wassermann and Hecht reactions also positive.

The patient received, from December 5 to January 5, eleven intramuscular injections of sulpharsenol as follows:

December	5,	0.06 Gm.
December	6,	0.12 "
December	8,	0.18 "
December	10,	0.24 "
December	13,	0.30 "
December	16,	0.36 "

December 19,	0.36	"
December 23,	0.36	"
December 27,	0.30	"
December 30,	0.30	"
January 5,	0.30	"

Cicatrization of the chancre was complete by December 14th.

On January 5, the Bordet-Wassermann and Hecht reactions were still slightly positive.

Case 3. Woman, 21. Syphilis about six months old, unnoticed, untreated. December 1, had a generalized cutaneous rash, papular and papulosquamous syphilis on the upper and lower limbs. Erosive vulvar syphilides; mucous patches in the mouth and pharynx. Bordet-Wassermann and Hecht reactions positive.

The patient received the following injections of sulpharsenol:

December 3,	0.06	Gm.
" 6,	0.12	"
" 9,	0.18	"
" 13,	0.30	"
" 17,	0.36	"
" 22,	0.42	"
" 25,	0.48	"
" 30,	0.30	"

On December 10, the lesions had almost disappeared. There remained two or three cutaneous lesions which had been very much infiltrated.

December 17, all signs had disappeared. December 30, Bordet-Wassermann and Hecht reactions were still positive.

Case 4. Woman, 32. Syphilis about seven months old. Was treated for the first time in June 1919. Received four infravenous injections of novarsenobenzol.

In October 1919, vulvar and buccal syphilides, for which the patient received two intravenous injections of novarsenobenzol. Never had any other treatment. Upon examination, on December 5, 1919, exhibits labial and lingual mucous patches.

Bordet-Wassermann and Hecht reactions, completely positive. The patient received the following injections of sulpharsenol:

December 5,	0.12	Gm.
December 6,	0.18	"
December 9,	0.30	"
December 12,	0.36	"
December 15,	0.42	"
December 20,	0.48	"
December 24,	0.42	"
December 29,	0.48	"

All signs disappeared on December 10th.

January 6th, Bordet-Wassermann H. 5, Hecht completely positive.

Case 5. Male patient 35. Syphilis eleven years ago. Treated fairly regularly during the first three years, with injections of grey oil. No treatment during the four following years. In 1915, he received, in a military hospital, four intravenous injections of novarsenobenzol for a glossitis present for the past five or six months. Since then, has taken protoiodide pills for one month. Examination, November 15, 1919, buccal leucoplakia, glossitis slightly ulcerating, particularly on the back and on the edge of the tongue.

Bordet-Wassermann and Hecht completely positive.

November 27, intravenous injection of 0.06 Gm. of sulpharsenol.

November 29, intravenous injection of 0.18 Gm. which provoked at once flushes of heat with a sense of suffocation, which lasted only a few seconds. The patient was changed at once to the intramuscular injection of the remedy.

December 3,	0.12	Gm.
" 6,	0.18	"
" 9,	0.24	"
" 13,	0.30	"
" 15,	0.30	"
" 19,	0.36	"
" 24,	0.36	"
" 28,	0.42	"

The patient, who tolerated the intravenous injections badly, showed no reaction whatever to the intramuscular injections which led to a complete cicatrization of the buccal ulcerations. A slight leucoplakia only remains.

December 28th, Bordet-Wassermann and Hecht reactions still remain positive.

Doctors Emery and Morin[3] have made 250 subcutaneous injections of sulpharsenol and claim that this method is devoid of pain and more effective than the intramuscular injections. In two cases, they observed a delayed reaction similar to a nitritoid crisis, but these cases had exhibited more severe crises following the intravenous injection of the remedy. They concluded, therefore, that the subcutaneous injection was superior to the intravenous, and we cannot but regret that these authors did not proceed one step further and test the sensibility of these two patients by the intramuscular injection.

Dr. Bernard[3], of Brussels, gives the history of 6 cases in which he administered as much as a total of 10.92 Gm. of sulpharsenol in 13 injections, in a period of 29 days. This certainly shows a tolerance for the remedy that surpasses that for any other preparations of arsenic. Dr. Tant, in his clinic, secured very favorable results from sulpharsenol in blenorrhagic rheumatism. Dr. Dureoux[4] has had some remarkable results from the remedy in orchitis and other blenorrhagic complications. Doctors Bernard and Yearnaux believed that sulpharsenol can be used to great advantage in the tropical diseases; they relate the case of an Algerian soldier who presented himself with a chancre and who, at the same time, was suffering from bi-weekly attacks of intermittent fever, which entirely ceased after receiving his second injection of sulpharsenol.

Thereupon, Doctor Bernard asked a confrère, Doctor Despré, head of the Kikande Matadi Hospital (Belgian Congo) to try this remedy on the patients in his Hospital, who were suf-

fering from the different tropical maladies, malaria, pian (yaws), tropical ulcer, sleeping sickness, etc. He has received word that an interesting series of experiments is in progress and hopes to publish them later.

At the same time, he addressed a letter to Doctor Houssian of Kinshasa (Belgian Congo) in the same terms, and I quote from his article the following: "As much from a desire to give my distinguished confrère priority, as from its scientific interest, I quote from a letter which he addressed to me, dated May 24, 1920: 'I tried the sulpharsenol, as you requested me to do, in different cases of tropical maladies, and the following is a résumé of the results obtained:

"'Pian (yaws) and phagadenic ulcers; results were equal to those with neo-philarid persten. The first case was that of a negro. Eight hours after the injection, the filaria had disappeared from the peripheral circulation, which makes me believe that the remedy is interesting and worthy of careful study.

"'Treponemiasis: In one case, the trepanosomes had disappeared by the following day, which is the same as the result secured with other arsenical preparations.

"'Lepra: Result, negative.

"'But, there is one feature that interests me; namely, sulpharsenol cures syphilis in from ten to fourteen days. This is clear and evident. I have tried it in twelve negroes and I have been astounded at the rapid cure.'"

Dr. F. Carminow Doble[5] is favorably impressed with his use of sulpharsenol in syphilis and particularly in the treatment of complications in gonorrhea. He says: "I have tried this remedy in most of the complications that are met with; arthritis, rheumatism, hyperkeratosis, and here the results were remarkably good. But, the effects in epididymitis were extraordinary. I have treated nearly 300 cases of this complication with sulpharsenol and have never failed to stop the pain in a few days, the average time in bed being from 4 to 5 days. Patients previously in great pain, who had to be given morphine, slept peacefully a few hours after the first injection of sulpharsenol. The amount required to cure varied in different cases, but there were no relapses."

Dr. Chateilier[6] experimented with this remedy in the dermatoses.

Levy-Weissmann[7], Stern and Ridler[8], Levy-Bing and Duroeus[9] have had favorable results with this remedy in gonorrheal complications.

The clinical department in which sulpharsenol has met with the greatest favor is in the treatment of the new-born and of nursing women, and here the success of its application seems to be universal.

Dr. G. Blechmann[10] sent out a questionnaire relative to hereditary syphilis, embodying the following questions:

1.—Have you found an increase in hereditary syphilis since the war?

2.—Do you think that the cases are more numerous or that more careful inquiry can account for the increase?

3.—What signs have you studied in particular which you find insufficiently described or ignored in the classics? Do you remain faithful to mercury in private as well as in hospital practice? How do you treat hereditary syphilis and its inactive manifestations?

3b.—Do you employ arsenic in private practice? In hospital? In what form? By what route?

3c.—Do you favor a combined treatment, such as Iodide-Bismuth?

4.—In the absence of new symptoms, for what length of time do you persist in the treatment?

5.—What value do you attach to laboratory research as a means of diagnosis in the newborn?

6.—Have your methods of treatment given you satisfaction in regard to curative results?

7.—What is your attitude toward the parents who ignore the fact that they have transmitted syphilis to their children?

The replies from several doctors are published and make profoundly interesting reading, but the limitations of this paper would not permit their reproduction. All these physicians, however, employ a combined treatment containing mercury and all find sulpharsenol the most convenient and fully satisfactory complemental preparation of arsenic.

Drs. Pinard and Pierre Giraud[11] describe their successful employment of sulpharsenol in the new-born. They give still further experiences in the use of the remedy in nursing women and infants.[12]

Drs. G. Paul Boncour and J. Clement[13] are equally enthusiastic respecting the ease of application and the favorable results obtained with sulpharsenol in nursing women and the new-born.

The employment of the arsenobenzols in the new-born has heretofore been attended with risks that make its use in hospital practice of rare occurrence and mercurial inunctions have formed the routine practice. To find in sulpharsenol an arsenical combination that can be employed in these cases subcutaneously or

intramuscularly, within certain limits without fear, adds a most valuable agent to our therapeutics, which is readily applied in the routine of an experienced, capable nurse, with appreciated relief to the busy, overburdened medical head of the hospital service.

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Some Observations on Bone Surgery

By R. E. B. BLEDSOE, Taylor, Texas,
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SURVEYING the whole field of medicine and surgery, there is no lot, tract or parcel (to complete the figure) that yields a richer return in good and, oftentimes, brilliant results for painstaking thought, study and an absolutely aseptic technic than that of bone surgery.

Now, you gentlemen who live in the smaller towns (and, permit me to remark, *en passant*, that that is where the very best all-round doctors come from) must not become alarmed or indifferent because you may think this is to be a highly technical paper, as entirely too many are, for the busy, everyday practician, or one that will prove of no practical importance to you. For, if this paper is to be of any value whatever or if there be any object or design in its preparation, it is you that are its object. Indeed, its design was, and is, to be of aid and assistance in meeting some of the problems that confront many of you from day to day in your life work.

The cases selected for presentation on this occasion have all occurred in my own practice and, while all of you, perhaps, have not had as rich an experience in emergency surgery, yet the cases selected, or similar ones, may occur and doubtless have occurred in the practice of each of you. These data represent an epitome of some of the more unique and interesting cases that have occurred in a practice of some twenty-six years.

Plastic Surgery a Quarter-Century Ago

About twenty-five years ago, one winter afternoon, there was hauled to my office, in a wagon, a little negro bootblack, some ten or eleven years old, who had what appeared, on a cursory examination, a gunshot wound of the left arm of so serious a nature as to necessitate a shoulder-joint amputation. He had been out hunting and, on pulling his gun (a double-barrelled one) through a wire fence, the hammers or triggers were caught, the gun was discharged and tore away the biceps and coraco-brachialis muscles, fracturing the humerus in an oblique manner and practically exposing both, the elbow and shoulder joints.

The little negro had been nearly exsanguinated before intelligent assistance reached him and, after the arm had been corded, he was placed in a wagon and rushed to my office with all the speed that the transportation facilities of that time warranted.

I immediately put my amputating tools to sterilize and summoned a brother physician to administer an anesthetic, preparatory to a shoulder-joint amputation.

As the little fellow was quite weak from shock and hemorrhage, I gave him about a pint and a half of normal saline solution, subcutaneously, placed him on the table and took off the rags preparatory to cleaning the field for amputation. To my astonishment, I found that, in some miraculous manner, the brachial artery and median nerve had both escaped, although completely denuded of all surrounding soft tissue for some five or six inches. There they were, fairly jumping at me. To convince myself that I was seeing things straight, I reached down for the radial pulse. It was there; so, I announced to the great crowd of bystanders (who always congregate at a doctor's office in a small town whenever some severe emergency case shows up) that there would be no amputation and I would endeavor to save the little boy's arm.

This announcement was received with great disgust by the bystanders and some Civil War Veterans were outspoken in their views. Indeed, as I was quite a youthful physician and appeared still younger, they did not hesitate

to advance the opinion (in my hearing, mind you) that the young doctor was a fool; that such an arm could not be saved and that they had seen the old army surgeons cut off hundreds of arms not nearly as bad as that one.

I cleaned, dressed and splinted the arm as carefully and tried as manfully as ever one could, you may be sure, to hold those fragments in apposition. But, because of no outer and inner support, all the soft tissues about the fracture having been shot away, and because of the dragging of the unopposed triceps, apposition was impossible. I would find the sharp end of the lower fragment sticking out between the artery and nerve or, again, the sharp end actually pushing out the brachial artery alone. I often thought, in those harhowing days, that the little negro's brachial artery bore a charmed life and that the old "vets" had not been so far wrong, after all, in their estimate of my mental status.

I do not know whether my silver plates antedate those of Mr. Lane, or not; I have never cared. However, the idea was purely original with me, and I hold in my hand, gentlemen, the auxiliary means of regeneration and salvation (I believe the ministers hold that regeneration must always precede salvation) of that little negro's arm. Today, if he still be living at the age of thirty-six years, he has functionally as good and useful an arm as any of us.

Briefly: I went to a jeweler friend, selected two thick, heavy, silver finger-rings (the kind he sold to the negroes), and had him cut and straighten them, setting screw holes in each end. Having no suitable screws, I robbed mine and a friend's telephone boxes of the little screws that held in place the keyplates, got a dentist's foot-engine, selected three burrs of suitable size, sterilized them, drilled the holes for my screws, set my plates, held the fragments in firm and perfect apposition and, after about 8 months of daily care (for, of course, I got a low-grade infection in a wound so large, where hygienic surroundings were the very worst possible), the expenditure of some two hundred or more dollars for dressings, etc., and thousands of dollars' worth of practice and experience on my part, the little boy emerged with a perfectly sound, good arm. And, may I say it, ever so slyly, perhaps; old Bledsoe was not *such* a fool after all.

It is true, gentlemen, that the direct financial return in this case was negligible. I allowed the little fellow to pay me fifty dollars out of the nickels and dimes he earned blacking boots in a barber shop; which he did most cheerfully and willingly. But, my compensation arose, gentlemen, in a sort of "chokey" feeling about the throat and a mistiness about the eyes, when Charlie would come round, years after, a man grown, exhibit his good left arm and tell me about his good job in a garage, his wife and three little nigger-babies; and when he said, "I'm always telling dem little niggers what a good doctor Dr. Bludsaw is."

Another Gunshot Wound

Some twenty or more years ago, I was called with my friend and confrère, Dr. R. L. Wedemeyer, now of Waco, Texas, into an adjoining county to see a case of gun-shot wound; and a most ghastly wound it was, indeed. The chin and submaxillary, carrying some eight or ten teeth, were completely shot away, the tip of the tongue was lacerated, split and pierced in several places, and there were twigs, teeth, shattered bone, shot and gun-wadding driven beneath the mucous membrane of the tongue and upon the esophagus, while skin and soft tissues of the mouth were hanging in many shreds and flaps. The first thought that obtruded itself upon me, when I saw the poor lad, was, that this mouth resembled a large catfish with its fins, gills and feelers.

The case was certainly a poser to us both. It *looked* hopeless and Dr. Wedemeyer was frankly of the opinion that the poor lad would die, shortly, of a cervical cellulitis.

After cleaning out teeth, twigs, shattered bone, shot and gun-wadding and placing sutures in the tongue and around about the mouth in the most promising looking shreds and flaps, I told Dr. Wedemeyer that, if he would meet me there, the next morning, early, prepared to give an anesthetic, I would think over the case that afternoon and night and we would see what we could do toward plastic and reconstructive work.

The problems in this case were manifold, as you will readily see, but the chief one was, to supply a scaffold of sufficient strength and permanency to maintain the fragments of the mandible in the same plane, which plane and position they would in no wise assume, because of some inequality in the strength of the buccinators and masseters of the opposing sides, causing the bone-ends to rise and fall without any apparent synchronism whatever, on voluntary effort; and, further, to furnish a guide along which the new bone might propel itself during its reconstruction, in the happy event that such a thing were possible in

the presence of a constantly drooling saliva.

As before, I had recourse to my jeweler friend and had him construct this plate which I now hold in my hand, by means of which the mandible was reunited, giving the boy, now a man of thirty-seven years, a functionally perfect mouth. When I last saw him, about a year after I removed the plate, the cosmetic effect of the mouth was, really, not so bad.

Permit me to observe that, in this case, I secured an ordinary, every-day gimlet from a hardware store with which to make my screw-holes, and ruined a perfectly good bone chisel in driving the screws home. With the trimming of a shred and a flap, hither and yon, a little cutting and loosening of the skin and deeper soft tissues, here and there, in different angles and attitudes about the mouth, I fashioned and reconstructed the best mouth possible for this lad with the very scanty material I had at my disposal. Indeed, I was really and truly astonished that it turned out as well as it did, the whole operative procedure progressing beyond my fondest expectation.

I met my friend and confrère, Dr. Wedemeyer, about a year ago, at his brother's sanatorium, for the first time in fourteen or fifteen years, and about the first remark he made, after the usual salutations had been exchanged was, that it was such a pity those fool people were so trifling as not to have allowed me to do a little plastic work on the boy's mouth after all the parts had thoroughly healed; that the general result in this case was positively brilliant; that, on account of the density of the scar tissue about the left lower angle of the mouth, there was some distortion and a slight dribbling of saliva when the boy ate. He asked if those people ever paid me anything for the work. I replied that I had never received one nickel for it but, then, they hadn't had time; the work had only been done twenty years.

As to Remuneration

I have done a number of head or brain-surgery cases; but it is a significant fact that those which I consider about the best operative work have been done gratis. For the last seven cases of brain surgery performed, I recall having received exactly $14.50 and, from the standpoint of end-results, they terminated brilliantly. One, a depressed fracture with hernia cerebri, was done in a negro shack with a locomotive fireman giving the anesthetic, and my instruments were boiled in an empty tomato can. After recovery, the negro was so grateful that he paid me the sum of $4.50. Then he seemingly disappeared off the face of the earth. Then came a series of five cases: bums, hoboes, negroes, etc.; three done in my office and two in negro cabins and for which I did not receive a thank you. The last, a depressed fracture with a clot beneath the dura, was done in a cabin, about midnight, with the aid of a light furnished by a small brass lamp. These negroes were unusually appreciative and paid me $10.00 on the spot. That makes a total of $14.50 for seven cases, or two dollars seven and one-seventh cents a case. But then, you know, a doctor makes his money mighty easy.

Since typing the above I was fortunate enough to run into this boy and have brought him along. You see the scar of osteoplastic resection.

A Difficult Fracture

I shall mention a fracture case that proved of unusual interest to me, by reason of the fact that it was a diagnostic puzzle and remained so for some four or five months; or, to be exact, until I operated on the patient. This case occurred in a period of my professional career when I was seeing fractures almost daily, having handled hundreds of cases up to this time and, as I believed, having seen and treated about every variety of fracture known to man.

Two young negro women, mistresses of white men about town, had rented a livery horse and were proceeding to joyride, man-fashion, one moon-light night, about the streets of town. They had a considerable cargo of beer or other liquid delicacies aboard and were quite boisterous and hilarious. It occurred to some of the railroad boys that here was a fine opportunity for some sport. Accordingly, they secured some "high-life" from a drug store and bestowed a liberal portion upon the hips, flanks and hocks of the ambling palfrey, whereupon this staid and sedate livery-horse became immediately rejuvenated as though he were the recipient of recently grafted monkey-glands, and developed an ambition to scale brick walls and climb telephone poles; with the result that the hindmost wench was precipitated, with more or less violence, upon a concrete sidewalk, sustaining a fracture of the middle of the left femur.

She was brought to my office accompanied by a large contingent of negro men and, after placing her upon a lounge, it was at once apparent that there was a shortening of three or more inches in the left leg; there was very

slight crepitation motion between upper and lower fragments, being limited to a rocking motion on applying force or lifting upper and lower portions of the thigh in different planes, and very little pain seemingly, which I attributed to intoxication.

After assembling suitable splints, I addressed myself toward overcoming the shortening. I worked diligently for some time, but the shortening remained, despite my efforts; whereupon I enlisted the services of about a half dozen negro men, two holding the shoulders, one the upper part of the left thigh, and three working in relays on the leg, while I manipulated about the site of the fracture. But, our combined efforts were unavailing in overcoming the shortening.

The next morning, I proceeded to Hattie's quarters, accompanied by a half dozen burly assistants and a bottle of chloroform, confident that I would be able to effect reduction and overcome shortening. She was profoundly anesthetized, and some five or six men, under my direction, worked diligently, for about thirty-five or forty minutes, in a vain effort to overcome the shortening. The interval between the date of fracture and operation was spent, chiefly, by the woman in bed and by me in employing all the stunts made and provided by the various authorities, looking toward bony union. I gave tonics, antisyphilitics, hammered, pulled and hauled at various times and seasons, when I was not too busy with something else. But, it was all no use; as at first, I had no callus, a rocking motion and a shortening of three or four inches.

You may think that this case could have been cleared up by x-ray, in this modern day and time; but, I will answer that the true condition would not, in my opinion, have been revealed by the best of films and plates of this day, as you shall presently see when I tell you what was revealed when I cut down on it. I had a fine old Van Houten Tenbrooke Static Machine which would really do good fluoroscopic work on bones, bullets, etc., any time I had the time and patience to get the old hussy dry enough to light up my tube. I could see the site of fracture in this case, viz.: I could see several pieces of detached bone along the outer aspect of the femur, and a thinning of the shadow at this point; but, the bone shadow, as a whole, was continuous throughout, symmetrical, with no solution of continuity whatever.

There was something decidedly "phony" about this case, and it completely "got my goat" if you will permit me a slang expression. So, I boiled up my tools, one morning, got my partner, Dr. Moses, went down to Hattie's shack and proceeded to get into her leg in a jiffy, and here is what I found: femur fractured obliquely, several fragments of bone completely detached, along outer aspect of femur, a cone-shaped upper fragment, with apex of cone pointing downward, and that jammed and wedged into the medullary canal below so firmly that the devil himself could not have budged it. I couldn't do it with my hammer, chisels and levers, and plenty of assistants to manipulate the leg. I had to saw off the upper fragment completely, retract the upper bone from the field and then, only, was I able to force the cone-shaped fragment from the medullary canal with my chisel, after having chiseled away a small wedged-shaped portion. Then I sawed off a small portion of the lower fragment, to give me a square joint, as the carpenters do; and, in a reasonable time, Hattie had a good useful leg, although it was about five inches shorter than its fellow. But, to cap it all, gentlemen, her white lover refused to pay me; for he said, "Doc you shore done a bum job on pore ole Hattie's leg, it is five inches shorter than the other one and she has to limp." In just about two weeks time, he married a white woman; so, poor old Hattie and I both got left. Can you beat it?

Fracture Pointers

Now, gentlemen, I desire to give you some fracture "dope." I honestly believe in it, for I practice it, and you may take it or leave it, as your judgment warrants. I am going to tell you some things that you will not believe and that, perhaps, will really provoke you, but they may make you think a little. If so, I shall be most happy. I shall feel amply repaid for my visit to Rockdale in the role of essayist before this body of scientific men.

Avoid plaster of Paris in your fracture work, unless you fashion splints from it or use it in your joint cases, after some weeks have elapsed and you desire support for ambulatory cases. You can fit a joint more snugly and give better support with this material than with at most any other kind of appliance, but, *never circle a limb with it, and you will be happy.*

I have two fracture cases of which I am not particularly proud (in a total of about five hundred cases) and in both of which I depended upon the fluoroscope (without plates) and plaster of Paris; one a Pott's and the other a Colles'. Both patients have good, use-

ful limbs with perfect function; yet, while I have always admired the curved lines of grace in young females, I would not voluntarily select the left forearm in which to place a curve, had I the making.

I never depend upon the fluoroscope (please catch the word fluoroscope) unsupported by a film or plate, and I almost never use plaster of Paris except as outlined; for, it causes paralysis, atrophy of muscles, nerve irritation, stiffness about the joints, with great prolongation of the period of restoration to normal. Chiefly, it prevents inspection of parts, which I have fund the *conditio sine qua non* in all good fracture work.

Have your splints very loose and quite long; immobilize the whole limb. That is the only virtue of any appliance. Any time you have your casts, splints or other appliances tight enough to jam and hold your bones in apposition, you are doing more harm than good. It is usually muscular traction that prevents coaptation and, pray, tell me, what good your bone will do if you squeeze your muscles to death?

I feel that I am safe in saying that I have treated a hundred, or more, fractures with a little card-board and a loose bandage or with sand-bags and weights, with never a cast or splint; and I have never even been threatened with a malpractice suit.

In cases of great trauma to soft parts, if there be much muscular dragging, I rarely ever use any other support, for two weeks, than sand-bags and weights. I learned better many years ago.

In fractures by direct violence, with great extravasation of blood, cleanse your skin with scrupulous care, approach your accumulation, withdrawing blood with a long needle of large caliber very obliquely and from the most dependant position possible. Then, you will not, likely, have to operate later for non-union. I operated on two cases for non-union from this cause before I learned.

With the extravasation (which can only mean great violence to the adjacent soft tissues), you are sure to get a great outpouring of fibrous-connective-tissue-cells. This, with your organized blood clot surrounding and getting between the ends of your bones, means that the "jig is up" with your bony union.

Always remember, if your fracture is very painful, that there is something wrong. Regardless of what your x-ray may have shown and of the secureness of your appliance, get your traps off at once and turn the fracture loose for ten days or two weeks. Then your definite callus is being thrown out and you may set and mould "to taste"—as the cook-book recipes say.

Unless in cases of extremely oblique fractures, do not be afraid of motion between your fragment ends. It frequently hastens a firm bony union.

Never, by any means, put up permanently a fractured arm or leg until you have carefully compared it with its fellow. You may not believe it, but I assure you that this is a very important point. In extremely muscular patients, never overlook the anesthetic in effecting reduction. Personally, I like chloroform, for it relaxes more thoroughly than ether, though it is not so safe.

Look at your fracture cases every day after two weeks have elapsed. This one measure will entail a little extra work on your part; unnecessary, you may think. But, take it from me, it will return big dividends in this kind of work. You may cut a ureter and bury your hysterectomy case and, in a reasonable time, it all blows over. But, get a nice "silver fork" in a Colles and, like Banquo's ghost, it constantly comes back to plague you; it is a traveling advertisement with a reverse English. I have known several really good fellows all but ruined by one such case.

I could give you quite a lot more of my fracture "dope"; doubtless, though, the dose has already been a little heavy, for I perceive that several of the fellows are just waiting to "jump me" in the discussion that is to follow, and this pleases me greatly.

Osteomyelitis

Gentlemen, it affords me great pleasure to introduce to you my fine little friend, splendid student, and the "dandiest" little quarter-back in the whole of Texas Hi Elevens, Master Harold "Red" Harris (you can see that he is some Red), who very obligingly consented to miss school this afternoon in order that you might have a clinic and a living exemplification of what self-reliance and the "be-sure-you-are-right-and-then-go-ahead spirit" will accomplish.

A short time after I had seen the Great World War through and, like Cincinnatus of old, had returned to peaceful pursuits once more, little "Red's" mamma brought him to my office for a painful condition of his left heel, painful enough to keep him from school, with the very meager history that, about a week before, he had fallen, one afternoon, while playing football at home, and slightly hurt his left knee; or else, he had stuck a piece of glass in that heel, which she had

failed to remove entirely.

The next day, "Red" developed a temperature and the pain in the heel was much more pronounced, so much so, that I opened up, down to os calcis, under local anesthesia. No pus was found, neither was there any glass. I did a white count which showed about 11,000 with about 82% "polys," if my memory serves me.

The following day, the pain had shifted from the heel and had rather indefinitely localized itself about the left knee, with a temperature 101.3 and, because of the history of the injured knee (now gentlemen, please get this, for I consider the history of an injury, if ever so slight, the one outstanding point in arriving at a diagnosis of osteomyelitis), I made a hard and fast diagnosis of osteomyelitis, insisted on removing the boy to the hospital and going into the leg at once. This was entirely too radical for the parents who requested consultation, and the consultant, being a roentgenologist, wanted plates, films, etc. Red was removed to the hospital, but of course, the plates did not show anything (Positively, gentlemen, they never will in this early stage.) and my diagnosis was accorded very scant respect by the consultant.

A second blood-count revealed a leucocytosis of 18,000 and about 87-percent "polys." This was entirely enough for me; so, I went to the parents and exerted all the pressure and powers of eloquence and persuasion, of which I was capable, finally, gaining their consent to go into the leg under gas anesthesia. This was done about nine o'clock that night, my first incision being along the outer condylar ridge; but, I encountered no pus after getting below the periosteum. Then, I quickly incised along the inner surface of the thigh, but still no pus. The consultant was thoroughly enjoying himself by this time, but I was determined to find the pus. So, I asked him to hold up the thigh in order that I could go into the popliteal space. To this, he seriously objected on the ground that I would sever one of the arteries and find no pus either. I explained that I was entirely and solely responsible. At least, I would arrest the hemorrhage, if any, and that was preferable to losing the boy's leg if not his life. I reached the bone in one bold cut, without getting either of the arteries, stuck my chisel into the cancellous bone and there came the pus. You may wager, gentlemen, that I was a greatly relieved doctor about that time.

We rocked along for a day or so, the wound discharging some pus, but not enough. So, several nights later, I went into "Red's" leg, again, under ether. I chiseled out quite an opening and was greeted with such a profuse hemorrhage, that I was forced to pack very tightly, with iodoform gauze, to save his life. "Red" was very ill for several days and quite weak from loss of blood and, I recall that I administered normal saline, subcutaneously. He was quite septic in spite of a fairly free drainage; so, I went in again at the end of about a week, but did not seem to improve matters to any marked degree. After about four days' interval, I went in again, enlarging my original incisions along the outer and inner condylar ridges and entered the medullary canal making a number of openings on both sides with bone-drills. I did not encounter anything but blood and I believe now that my last two openings were entirely unnecessary. "Red's" leg, if not his life, had been saved by my original and second operations.

"Red's" was anything but a typical case. There was a low-grade osteitis following the primary suppuration, with great outpouring of osteogenetic material, stimulated, no doubt, by the repeated operative measures. I had feared that we would have a separation of the lower part of the shaft of the femur, with shortening, ankylosis and a devil of a mess generally. But, evidently, I had wrought better than I knew, for, when "Red" did make a start toward recovery, he came with one of his typical football rushes that soon put him over the goal. The leg discharged for several months (about how long, "Red"?) but, it was all the same to Red, and, as the negro would say, "He didn't pay it no mind."

There were several small spicula of bone that were discharged at intervals, and one most peculiar feature in "Red's" case was, a freakish metastasis showing up in the tuberosity of the right ischium about six weeks after drainage ceased from the popliteal space. I cut down on this under local anesthesia. I fear to this day that Red has very little confidence in locals for himself. This rascally complication "bedeviled" us for some months and only yielded after I went after it with a bone curette, again under local, and removed a small fragment of necrosed bone. Thus ended "Red's" case of osteomyelitis and I believe I have not prescribed for him since 1920.

Osteomyelitis is, unequivocally, one of the most serious infections with which we have to deal. While fortunately, it is not common, yet, it is not rare, and its ravages are most pitiable. If you, as a doctor, are to be of any

assistance whatever, you must recognize it within the first seventy-two hours and act with the utmost boldness in disposing of the case, for, as in appendicitis when you get suppuration, so, in osteomyelitis, when the pus has burrowed beneath the periosteum, the doctor who has handled the case is guilty of malpractice.

Now, gentlemen, when you have cases of arthritis, don't assume that they are all rheumatism. Take a most careful history for an injury, make your blood-count and, when you get a leucocytosis of 14,000 or over (usually after the chill it will go to 20,000, or over) and a differential of 85-percent "polys," clean the skin, sterilize any kind of an old knife, get a gimlet from a hardware store, if you have nothing else, and go into that medullary canal at once. What difference, if you don't strike pus or if you have actually made an error? Isn't it a thousand times better to make a hundred errors in diagnosis than to overlook one case of osteomyelitis, letting the patient lose his life or some bright girl or boy go through life, a hopeless cripple?

You may, with some degree of fairness, advance the criticism that you see nothing of especial value to the profession at large in the recounting of the cases herewith presented, and, if you have failed to catch my viewpoint, I grant you that your contention is entirely valid. The vision I wish you to catch is that of a small-town doctor (country, if you like) surrounded by the most adverse circumstances and conditions, yet, with determination, a liberal use of what gray-matter the good Lord gave him and, chiefly, an abiding self-reliance. He is, and will, be able to accomplish some fairly good results, even outside a hospital, and with a most meager equipment.

Finally, gentlemen, what one little country doctor can do, another can do. As a man thinketh in his heart, so is he. Be not appalled by difficulties. So, my parting message to you is, learn all you can every day. Then believe you can do it; for, self-reliance, mixed with a little brains, is the greatest of a doctor's assets.

104½ East Third St.

Tuberculosis of the Anus and Rectum

By CHARLES J. DRUECK, Chicago, Illinois

TUBERCULOSIS is one of the terrible and destructive infections of the lower intestinal tract, which may appear in a variety of clinical pictures. It may be primary or secondary. Primary tuberculosis of the anus or rectum (appearing as the only evidence of the disease in the individual) is very rare. Secondary tuberculosis, on the contrary, is quite frequently seen as a result of swallowing of sputum by the patient who is suffering with pulmonary tuberculosis. In health, the hydrochloric acid of the stomach will destroy the tubercle bacilli; but, in debilitated individuals, where the gastric secretions are of weak quality, the bacilli pass into the intestine unimpaired.

Anal Tuberculosis

Tuberculosis of the skin about the anus may appear as miliary, ulcerative, lupoid or verrucous lesions. Miliary tuberculosis about the anus is very rare and occurs as a complication of tuberculosis of other organs. It develops in the form of millet-seed-sized nodules grouped in crescents or circles which begin in the hair follicles, the sebaceous or sudoriparous glands of the skin. Later, as the infiltrations enlarge, necrosis of the superimposed skin occurs and small, cup-shaped ulcers with ragged borders appear. There is a slight discharge of seropus, but no bleeding. These ulcers usually continue as small individual necroses, but sometimes they coalesce into extensive wounds. Their blood supply is poor and they do not bleed on handling.

Ulcerative Anal Tuberculosis

Tuberculous ulcers at the anus begin insidiously. Sometimes there is a history of a known injury, although often this injury was so slight as to be forgotten until brought to mind by the examiner's questions. For example, a diarrhea, horseback or bicycle riding or a thrombotic hemorrhoid have been followed by an area of induration at the anal margin which persists for a long time and finally ulcerates. The necrosis may begin on the external skin or within the anal canal. As the ulcer spreads, it usually involves both the perianal skin and the anal mucous membrane. Tuberculous ulceration in the anal mucosa does not confine itself to a sulcus, as does a fissure, but widens out in all directions. The borders of these ulcers are clean-cut, undermined and pale with a ring of raised induration all about the ulcer. The base of the

ulcer is irregular and gray in color and does not bleed easily. On the surface of the ulcer, may be seen small yellow tubercles. There is not much pain with the passage of feces or on the manipulation of examination, which is quite in contrast to the sensitiveness of the irritable ulcer. This freedom from pain distinguishes the tuberculous ulcer from fissure, chancre, mucous patch and rodent ulcer. The discharge is scant and thin, and rarely tinged with blood.

The clinical course of these ulcers varies greatly. Some extend slowly while others spread rapidly and destroy all structures. Unlike syphilitic ulcerations, there is no healing at one spot while ulceration progresses at another, but rather the tuberculous ulcer spreads continuously in all directions. The ulcer is not usually fatal, but it contributes to the general breakdown of the patient.

Fig. 1. Tuberculous ulcer at the anus. Note how the ulcer extends out onto the skin and burrows widely. It is not limited to a sulcus between the radial folds.

Case 2.—S. M., aged 43; occupation, a retail grocery clerk; nativity, Irish-American. In June, 1915, he was found to have pulmonary tuberculosis and has been under institutional care almost ever since. In August, 1916, he suffered with hemorrhoids which prolapsed for several days and were finally replaced by a physician. The patient applied an ice bag to the anus almost continuously thereafter for the next four weeks, and, about that time, noticed a marginal abscess. The abscess was opened but did not heal and, since that time, has continuously discharged a yellowish excretion. There is no pain at stool or on walking and but little pain after the manipulations of dressing the wound.

On inspection, we found an ulcer at the mucocutaneous junction in the posterior quadrant of the anus and to the right of the median line. It was ½ inch wide by 1 inch long and extended up into the anus and out on the skin. Its edges were irregular and rolled in; its base dry and glistening, not bleeding and was without any points of granulation. See Fig. 1 and 2.

Fig. 2 shows same condition.

Lupus at the Anus

Lupus was long considered a syphilitic manifestation but is now known to be tuberculous. It is slow in spreading but, in its aggravated type, is terribly destructive of tissue. The disease begins at the mucocutaneous junction at the anus or vulva as a small, soft, reddish-brown nodule in the corium (apple-jelly ulcer) which later breaks down into small, clear-cut ulcers, irregular in outline and having an indurated base. A cheesy pus discharge can always be found in some of the affected area. Cicatrization appears in some ulcers, at times, but it soon breaks down and the ulceration extends. A dense, fibrous infiltration beneath the ulcer seems to prevent its deepening but does not interfere with lateral spreading, which may be caused by enlarging of the individual ulcers and also by the formation of large ones.

Lupus is to be differentiated from cancer and syphilis.

Cancer rarely occurs in early life and, if it does, it runs a very rapid course. On the contrary, lupus frequently appears in children and persists in adult life. The base of the cancer ulcer is pearly white, indurated, uneven and glazed, and its edges are everted. Lupus ulcers are usually multiple, have soft, insensitive bases and edges covered with granulations. The secretions of a cancer are scanty and fetid, while the discharge of a lupus is profuse and odorless.

Syphilis is distinguished by its history, or by the presence of skin lesions, mucous patches, enlarged lymphatics and the Wassermann reaction.

Treatment of Tuberculosis at the Anus

Prophylaxis is all important. The tuberculous patient should be thoroughly and repeatedly impressed with the fact that it is through swallowing the sputum that the bowels become infected. Various procedures have been carried out hoping to produce immunity, but the use of tuberculin and also the transplanting of tuberculous lymph nodes into normal animals have both been unsatisfactory. When infection and ulceration have occurred, medication by mouth is not beneficial. These patients have poor digestion, and unpalatable drugs by mouth further upset the appetite.

Treatment of Anal Ulcerative Tuberculosis

If the patient's initial tuberculous lesion is of moderate extent or is not active, the ulcer may be thoroughly curetted with the Paquelin cautery, removing all of the necrotic tissues at the edges and base of the ulcer. I prefer the cautery to the knife, as by that means the distal lymphatics are sealed and dissemination is prevented. Thus we improve the patient's resistance. Following the cauterization, the anus should be exposed to the sunlight and air for several hours each day. The patient can soon be taught how to spread the nates and expose the anus. If any part of the body, which is normally covered, be thus suddenly exposed, directly, to the sun's action, blistering and painful tanning occurs. Therefore, during the first few days, the nates should be covered with a cotton sheet; later, this is replaced with three layers of cheese cloth, one layer of which is removed after a few days, the second, a few days later. But, at least one layer of cheese cloth should always cover the parts as a screen against the action of the sun. It is remarkable how quickly relief and healing take place. When a patient is weak and in our opinion not equal to the cauterization, even under a local anesthetic, surprising results may be obtained simply by exposure to the sun.

Treatment of Lupus at the Anus

Satisfactory results are obtained by phototherapy (Finsen light), concentrating the light rays on a small area of skin for about an hour. The next day, a small blister appears and this is dressed with soothing ointment. After all irritation has subsided, another exposure is given. The treatment is very tedious. The Röntgen ray also produces good results and is sometimes more convenient. Its action is pushed to the extent of producing a burn which is then protected with a soothing dressing. The scars following either of these plans of treatment are much less objectionable than those of any other procedure.

Zinc cataphoresis has been employed very satisfactorily in the treatment of lupus and epitheliomas. While there is no doubt of the efficacy of the Röntgen ray for the relief of these growths, the process takes much time and is not devoid of danger. In the use of zinc cataphoresis, however, a perfect result may be had without danger or pain, oftentimes in a single treatment.

The ulcer is made clean with hydrogen peroxide or boric acid solution and a pledget of cotton, saturated with 10-percent solution of cocaine, is wound around a block tin electrode of suitable shape and attached to the anode of the constant current. The cathode is the usual pad of absorbent cotton, so placed as not to be under the control of the patient. The anode, upon which the cocaine has been placed, is now applied to the ulcer and a current strength of from 5 to 10 Ma. (milliamperes) is maintained for about five minutes, or until complete anesthesia of the part is apparent.

The cotton is now squeezed with the finger until it is as dry as possible, and dipped into a saturated solution of zinc sulphate and again applied to the sore, using a current strength within the limits of tolerance of the patient, which is usually about 10 Ma., until the ulcer has assumed a decidedly blanched appearance. Every portion of the sore must be treated until it turns white. No particular care need be taken to prevent contact with the sound tissue immediately surrounding the ulcer; it will not be affected.

In a day or two, the surface of the ulcer turns black and, about the fourth day, the crust can be removed, leaving a smooth, healthy cicatrix.

The patient should now be watched, for a few weeks, for any small nodules that may appear in the margin of the sore. If any appear they should be given another treatment.

Tuberculosis Within the Rectum

Tuberculosis within the bowel occurs rarely in the miliary form but, more commonly, as ulcerative and occasionally as hypertrophic changes.

Miliary tuberculosis of the rectum usually is secondary to tuberculosis of the genital organs, more particularly the prostate, and begins as deposits which feel like bird-shot beneath the mucous membrane. The mucosa is pale and anemic, except that immediately about the nodule there is a ring of congestion. This

stage may continue for a long time, but at any moment the little nodules may become yellow, caseate and break down into little, cup-like ulcers, which later coalesce to form large ulcers, or several small ulcers may be connected by burrowing underneath the mucous membrane.

Ulcerative Tuberculosis

Ulcerative tuberculosis is the more common expression of this disease in the bowel and is usually secondary to pulmonary tuberculosis. Infection begins in the solitary follicles and in Peyer's patches, but spreads into large, irregular-shaped ulcers which follow the course of the blood vessels. Thus, in the rectum, they spread in all directions while, in the sigmoid, they tend to encircle the bowel. Beneath the ulceration, is a deposit of fibrous connective tissue.

Symptoms:—The local symptoms of tuberculous ulceration of the sigmoid or rectum are lumbar or sacral pain and rectal tenesmus, accompanied with diarrheal evacuations of pus, blood and mucus. The diarrhea is slight, at first, but increases as the ulceration spreads, until thirty or forty evacuations occur daily, and the associated coloproctitis disturbs digestion in general. The discharges have a gangrenous odor. Bleeding is not profuse but, as the oozing is persistent, the blood may accumulate and be retained in the rectum and, when voided, may be fresh or tar-like or mixed with feces.

Diagnosis:—Tuberculous ulceration of the bowel should be looked for in every tuberculous patient when diarrhea occurs that cannot be accounted for by overeating or improper food or by any other dietetic errors, and which does not promptly yield to treatment. The presence of tubercle bacilli in scrapings from the ulcer is strong evidence of the nature of the trouble, although the possibility of accidental deposit of the bacilli on a non-tuberculous ulcer must be remembered. The clinical picture is, however, somewhat characteristic: (1) The presence of tuberculosis elsewhere, as in the lungs, lymphatics or the genito-urinary system; (2) ulcers which follow the course of the blood vessels and in the rectum spread out irregularly in every direction; (3) diarrheal discharge of mucus, blood and pus with rectal tenesmus; (4) general emaciation of the patient with great loss of body fat. This may be expressed by the consumption of the perirectal fat and a shrunken or funnel shaped anus.

Differential Diagnosis:—The differentiation of a tuberculous ulcer from that due to some other irritation is very essential. Theoretically, this should be easy but, practically, it is much more difficult, because often the classical symptoms are lacking or confused. It is probable that tuberculous ulceration of the terminal bowel (sigmoid and rectum) is much less frequent than is generally supposed. When patients with rectal ulceration become emaciated, the conclusion frequently is, that the process is tuberculous. Any ulceration in the lower colon produces dysentery which contributes to imperfect nutrition and the clinical picture of tuberculosis, but the character of the ulceration differs with each causative factor. Rectal ulcers of any type are intractable, and, therefore, often believed to be tuberculous. Amebic ulcers may be mistaken for tuberculous lesions, but the amebic sufferer passes through many periods of symptomatic cure followed by sharp relapses, quite in contrast to the story of tuberculosis, which is progressively worse. In amebic ulceration, there is little variation of temperature and the pulse rate is increased only as exhaustion becomes pronounced. In tuberculous ulceration, elevation of temperature and acceleration of the pulse rate are always present.

Cancer, by the time it reaches the ulcerative stage, fills the lumen of the gut and causes obstructive symptoms.

A syphilitic ulcer has a punched-out appearance with raised edges, while the tuberculous ulcer is irregular in outline and has an uneven base (a worm-eaten appearance).

Hyperplastic Tuberculosis

This type of tuberculosis is characterized by the formation of a dense hypertrophy, instead of caseation and necrosis, and may be confused with syphilis or cancer of the bowel. The existence of tuberculosis elsewhere in the patient should put the physician on his guard.

Symptoms:—A proliferating stenosis, with great thickening of the wall of the bowel and including the peritoneum, develops, instead of the ulcerating cavities found in ulcerative tuberculosis of the bowel. These lesions are found in the cecum and appendix as well as in the sigmoid and rectum. The patient has the same diarrhea, tenesmus, sacral pain and rapid loss of weight as in the ulcerative type of tuberculosis. This hyperplastic form of tuberculosis is frequently mistaken for cancer or diverticulitis, and is differentiated only by microscopical examination.

Because rectal tuberculosis is secondary to this same infection elsewhere, it is usually the lesser complaint, and the patient succumbs to the primary trouble before stricture of the

bowel becomes severe; but, in some instances, obstructive symptoms are present. If stricture occurs, a removal of the diseased part of the bowel, by resection, is the only treatment.

Tuberculous Perianal Abscess and Fistula

The relationship of tuberculosis of the lungs, bones or lymphatics to rectal abscesses and fistulæ, is an open question. A positive statement that a given fistula is, or is not, tuberculous, is very difficult and often impossible, although much to be desired. Some fistulæ are surely tuberculous and others, quite as positively, are not tuberculous, but the proportion of one class to the other is unsettled, and much difference of opinion exists. Melchior[1], from a presentation of 197 cases, concludes that 61 percent of fistulæ are tuberculous. Geffrath thinks that 14 percent of fistula cases are associated with tuberculosis of the lungs.

Between these two estimates, are opinions of different observers. However, statistics that vary so widely are of no value.

Turning the problem about, however, to determine the number of persons suffering from pulmonary phthisis who are also suffering with rectal fistula, we find that nearly all observers agree on about 5 percent. Evans[2] says that about 6 percent of the people who have pulmonary tuberculosis also have rectal fistula. A patient suffering with tuberculosis elsewhere and having a rectal fistula need not necessarily have a tuberculous fistula, and vice versa, a patient may have a tuberculous fistula without showing signs of tuberculosis anywhere else in his economy. Tuberculosis is such a frequent disease that, undoubtedly, it may attack persons suffering with non-tuberculous fistula.

Loss of flesh is not necessarily evidence of the tuberculous nature of a rectal fistula, because emaciation may occur in any irritating disease about the anus; such as ulceration, fissure, hemorrhoids, proctitis or papillitis, and any of these will interfere with the appetite and digestion.

There are, however, symptoms which I consider highly probable of tuberculosis:

1.—The discharge of a tuberculous fistula is usually small in amount, thin and milky white, and continuous. The patient says that, ever since the abscess opened, it has never healed even for a short time.

2.—There is much dense induration (wall of scar tissue) about the sinus through which few sensory nerves pass, and the manipulation, incidental to examination, does not cause much pain.

3.—Multiple external openings soon develop and this is very presumptive of tuberculosis.

All of these signs are, however, relative, and a positive diagnosis must be made by biological study of sections of the fistula.

All patients with rectal fistula should be subjected to a careful examination for tuberculosis elsewhere.

Clinically Two Types of Fistula Occur

One is, a deposit of tuberculosis in the rectum or anus which ends in a fistula.

The second is, a simple fistula in a rundown person who is suffering with active tuberculosis elsewhere.

There are several contributing factors to rectal abscess and fistula in a tuberculous patient.

1.—Sputum, infected saliva or infected food may be swallowed.

2.—Infection may occur through the blood or lymph stream.

3.—Direct inoculation from the contaminated hands of the patient suffering with active pulmonary tuberculosis.

4.—A locus minoris resistentiæ, first as part of the generally lessened vitality and, also, as a result of the loss of perirectal fat, which is part of the systemic emaciation, may be the cause.

The physical findings in a tuberculous fistula are particularly important, because they may indicate the underlying etiology, months or years before active consumption appears in the lungs, bones, nervous system or lymphatics.

Fig. 3. Tuberculous fistula. Note two external openings on patient's left. Also induration about sinus openings and also induration of right labia.

The external opening of a tuberculous fistula is different from that of the simple fistula; instead of the usual small opening, there may be a cavity large enough to admit the end of the examiner's index finger. The

skin about the margin of the wound is livid and purple, because its blood supply has been destroyed. The ulcer is irregular in shape, with undermined edges and a pale base covered with a thick layer of gelatinous material, underneath which is a dense, fibrous layer. Sometimes, these gelatinous granulations fill and overflow the ulcer until the external opening resembles a wart. Melchior believes that granulations protruding from the external orifice of the fistula definitely indicate tuberculosis. Absence of such granulations, however, is no evidence against tuberculosis. With all of this destruction going on, there is very little local pain. There is no locking up of the discharges, because the large opening in the superimposed skin permits easy exit.

Determining the Tuberculous Character of Rectal Fistula

It is often impossible to determine, from the early appearance of the fistula or its clinical course, whether it is, or is not, tuberculous. Microscopical examination of the discharge or scrapings from or sections of the fistula are very unsatisfactory, because of contaminating infections and inflammation, which produce ulceration and sloughing that overshadows the caseation.

Fig. 4. Tuberculous fistula. Calcified lymph-glands showing.

All cases, in which any doubt can arise, should be subjected to several careful x-ray examinations in a search for calcified lymph glands within the pelvis. Fig. 4.

If a cold abscess exists and is unruptured, a little of the contents may be aspirated through a puncture, mixed with normal salt solution and injected into the subcutaneous tissue of a guinea pig. If a fistula is present, a section may be taken from the side of the sinus for examination or, if an ulcer is under examination, a piece of its edges may be removed. The small section may be easily and painlessly removed under local anesthesia.

An area two inches wide is shaved on the belly of the guinea pig. The skin is slit for about three-fourths of an inch and, with the handle of a knife, a pocket is opened in the subcutaneous tissue on either side of the incision, and the suspected material is buried in each pocket. The wound is closed and sealed with collodion. In three to six days, an abscess will develop, which should be opened. If no tuberculosis is present, the abscess heals without further developments. If tuberculosis is present, the wound probably will not heal, but an ulcer continues, the pig becomes sick, its rectal temperature reaches 104° F., emaciation develops and, in three months, the animal dies of miliary tuberculosis, especially involving the spleen, liver and lungs. At any time during this illness, the inguinal glands will be found enlarged and, if sectioned, will demonstrate tubercles and tubercle bacilli.

The Treatment

Treatment of tuberculous fistula is divided into that of:

1. Tuberculous rectal fistula, where there is no active tuberculous lesion elsewhere;

2. Tuberculous fistula in patients suffering with other active tuberculous foci.

Tuberculous fistula, where the patient is in good physical condition, without active tuberculosis of the lungs, lymphatics or bones, may be cured without danger of setting up a miliary tuberculosis, and the sufferer thereby given a longer lease of life and also much comfort. The plan of treatment is the same as that of a streptococcus fistula, but the details are different.

In a general way, the situation may be summed up as follows:

1.—Practically all non-tuberculous fistulæ may be cured.

2.—If carefully treated, all patients will have good rectal control following the necessary operation upon the parts.

3.—The majority of tuberculous fistulæ may be cured if the patient is in good physical condition.

4.—Even bad tuberculous fistulæ may be benefited, the suffering ameliorated and secondary suppuration prevented.

Operation:—Excision of the fistula and immediate closure of the wound with sutures

should not be attempted whenever tuberculosis is suspected. The dense, fibrous wall of scar tissue about the sinus is our patient's protection against widespread tuberculosis. Where opening of the tracts and cleaning out of the débris is indicated, we prefer the live cautery instead of the knife or curette. The sinuses should be laid open with the cautery in the usual manner, observing every care against accident, and all necrotic tissues and granulations are seared out, until the fibrous tissue base is exposed. All undermined skin is removed, as otherwise granulation is prevented or long delayed. By using Paquelin cautery, the lymphatics are everywhere sealed up as they are reached. A few days after the operation, these wounds become more sensitive than any other operative wounds about the rectum. The dressings should be light and only sufficient to catch the discharges. Healing is slow and the wound must be stimulated by exposure to sunlight and air each day.

Tuberculous abscesses or fistulæ may appear about the rectum, years before pulmonary or other active tuberculosis is found, and advise and treatment at this time may prevent the development of more active lesions.

Palliative:—There is another class of patients who present themselves suffering with tuberculous rectal fistula and who have also active tuberculosis elsewhere (lungs, lymphatics, bones and nervous system). They are poor operative risks, but seek relief from the discharge and pain of a rectal fistula. These patients cannot perhaps be restored to health, but much can be done to relieve their suffering by the use of bismuth iodoform mixtures. Two preparations of these are used, a thick paste and a thinner emulsion. The paste is prepared according to the formula of Rutherford Morison[3]. It is composed of bismuth subcarbonate, 1 part; iodoform, 2 parts; liquid petrolatum, 1 part.

O'Connor and Kreutzmann[4] devised an emulsion because of the difficulty of introducing the paste into the deeper cavities, which necessitated drainage through a narrow sinus. This emulsion is composed of bismuth subcarbonate, 1 part; iodoform, 2 parts, and liquid petrolatum, 4 parts.

The wound is first thoroughly irrigated with sterile saline or 1:25 boric acid solution. It is then liberally swabbed out with 75-percent alcohol. The surrounding skin is shaved and cleansed in the same manner. The wound with all its cavities and pockets is tightly packed with bismuth iodoform mixture and the opening closed with collodion or an adhesive strap; the patient being dismissed to report again in three to five days. Upon examination, many of these sinuses are closed and remain so for a variable length of time. This affords our patient weeks, or sometimes months, of relief and comfort. As the treatment is not painful or otherwise objectionable to the patient, it may be repeated as needed. When the cavity is large, the possibility of iodoform poisoning or lead poisoning is to be borne in mind. Our cases usually hold less than an ounce and, thus far, we have had no systemic intoxication; still, careful observation of the patient's pulse and an inspection of his gums must be made at each visit.

Case No. 3:—T., female, aged 30 years, had been under weight for several years; she looked anemic; hemoglobin, 72; had enlarged cervical glands on both sides; lungs negative; had a labial abscess for two years, which had discharged ever since. Figure 3 shows appearance on examination; the whole labial and perineal region seemed indurated on palpation; one external opening on labium has a sinus opening in the vagina, a second sinus into the bowel between the two sphincters; a branch from the sinus opens out on the skin to the left of the anus (page 659).

An x-ray examination of the pelvis demonstrated calcified lymph glands. This patient was obviously a bad surgical risk as, doubtless, the whole perineum was invaded; and palliative treatment was instituted. The sinuses were, each, carefully injected with bismuth paste and the patient given heliotherapeutic treatments. After several injections, the sinuses closed and remained so for about three months, after which the patient was lost from observation.

30 N. Michigan Blvd.

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[1] *Beitr. klin. Chir,* 1910, LXVII, 650.
[2] *Ohio Medical Journal,* 1910, VI., 169.
[3] *Lancet,* London, 1916, ii 268.
[4] *Journal A. M. A.,* Dec. 15th, 1917.

The Essentials for Success in Therapeutic Immunization (Antigen Therapy)*

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AS LONG ago as 1905, I showed that the opsonic index, the experiment on which Wright and Douglas founded the practice of therapeutic immunization, gave an incomplete picture of the serological conditions necessary for therapeutic success, and that, therefore, a method founded on such an experiment could not hope to give anything but limited results—a prophecy which has been amply fulfilled by the event. In spite of repeated papers and publications pointing out the causes of failure, the opsonic index still strides over the narrow world of therapeutic immunization with results disastrous to efficiency. I feel, therefore, entirely justified in reiterating the conditions essential for success; for, by following them, immunizators have been able to overcome every infection, acute or chronic, for which a microbial cause has been found. Nor is there any organ or tissue of the body, infection of which cannot be overcome by this means. By this method, also diseases indirectly due to microbial action, such as uric acid calculi formed in the urinary tracts, can be overcome by cutting off their building material through immunization against a chronic intestinal infection. I make no modest claim for the method: I claim that it is the fundamental method against microbial infection (for, is it not Nature's own?), and that by its means acute and chronic diseases due to microbes can be prevented and cured when every other method has failed. I should be glad, if challenged, to prove my boasts under the observation of any hospital staff on a number of cases sufficiently large to give the method a fair clinical test.

The conditions necessary for success are: (1) The antigen must be of good quality; (2) the antigen must be complete; (3) the patient must be capable of reacting; (4) a dose must be attained sufficient to produce the necessary amount of specific antibodies for the particular case; (5) the doses must be given at the proper intervals.

1.—The antigen must be of good quality:—the antibodies we desire to produce are of two kinds: (a) antibodies to the tissue of the microbe; (b) antibodies to the toxins (ferments) produced by the microbe.

(a) These antimicrobial bodies are of the nature of tissue ferments entirely similar to those produced for the tissue digestion of carbohydrates, fats, and proteins. They are compound ferments, one part not destroyed by heating to 56° C., and known by various names, e.g., immune-body, amboceptor, co-ferment, and so on; for these bodies, I have suggested the generic name of "adapters." The other part is destroyed by heating to 56° C., and is known as complement, or ferment. The complement is at best feebly specific, the adapters are absolutely specific; at any rate, those for the protein part of the antigen are; those for the lipoid elements are much less so or not at all.

(b) The antibodies to the toxins are antiferments, and are either anti-endotoxins or anti-exotoxins. The majority of pathogenic microbes produce only endotoxins, at least in vitro.

To a few microbes which produce exotoxins, the immunity is nearly entirely antitoxic; and, since the toxin, as I conceive it, is the ferment by which the microbe prepares its food from living protoplasm, the neutralization of it by antitoxin deprives the microbe of its means of life, so that it can no longer live in the body. It is ingested by phagocytes, digested by the aid of specific adapters, and the phagocytes survives the process, since antibodies to its toxin are present. In the majority of cases, the microbe produces little or no exotoxin, the endotoxin it produces acting entirely in its immediate environment. If an invading microbe is ingested in a phagocytic cell of a susceptible animal, the cell is destroyed by the toxins of the microbe. If the animal is partially immune, and there is then sufficient adapter to enable the phagocyte to ingest and digest the microbe, the microbe is destroyed, but the cell may be also destroyed by the consequently liberated endotoxin, unless there is sufficient antitoxin present to neutralize this. It is for this reason that the injection of antityphoid serum and antimeningococcic serum may be dangerous owing to the liberation of toxin from the hydrolysed

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microbes, unless sufficient antitoxin is present in the serum.

It is clear, then, I hope, from my brief argument, that, unless antitoxin is present in the tissue juices in sufficient quantities, the patient is not in a position to overcome his infection effectively.

When an animal becomes infected with a number of pathogenic microbes of a given kind, the latent period before the onset of disease is largely accounted for by the struggle for existence of the microbes; there is a survival of those microbes that are able to adapt themselves to their new environment, that is those whose descendants are able to produce a ferment capable of attacking the living material of that particular host. By passage from one individual to another, this capacity may be intensified to such an extent that the invading microbes certainly survive in their new host. But the quality of the tissues of every individual is different from that of others and, therefore, the quality of the toxin produced by the microbe must be modified by every host it occupies.

It is clear, then, that, if an antigen is to be effective, it must contain sufficient toxin to produce antitoxin, and to be a perfect antigen it must be isolated from the patient himself.

What is one to think, then, of the method of using antigens made from microbes reduced in toxicity through a saprophytic existence by repeated subculture on media containing nothing to stimulate their toxicity? Or of the much-vaunted 'detoxicated vaccines'? All one can say is, they are the exact antithesis of what is desirable in the way of an antigen. Antigens should be intoxicated not detoxicated.

2.—The Antigen Must Be Complete

In my first paper, I argued the necessity for the good quality of the antigen. It is equally necessary for success, if more than one microbe is attacking the patient's tissues, that the antigen should contain the bodies and toxins of all the attacking microbes.

Since the body is always covered with innumerable microbes, both on the skin and on the mucous surfaces, and the microbes from the mucous surfaces are being constantly carried into the interior where they are normally destroyed or excreted by the kidneys, it is not surprising that these microbes are looked upon as leading a purely saprophytic existence on the waste products and desquamated effete cells.

Indeed, it is the proper function of these microbes to invade and dissolve the body after death and so make it fit food for plants. What is not at all realized, however, is that, if the resistance of the body is lowered by whatever means—such as the invasion of a microbe which had developed the ferments to attack *living* protoplasm, or lowering of resistance by grief, alcohol, cold, and the like—these microbes develop ferments (toxins) capable of attacking living protoplasm. They have turned from a saprophytic to a parasitic mode of life, so that, even if the original invader has been killed off, the disease is frequently not cured for this reason.

There are, then, always present in the body microbes capable of becoming pathogenic if the resistance of the body is lowered. Of course, in persons whose bodily health is robust, such as those born of healthy parents or leading an out-of-door existence, their microbial inhabitants may be truly saprophytic in their mode of life. But, we have really no certain method of knowing whether this is the case or not. The only way we have of becoming aware of microbial invasion is, by feeling discomfort when the microbes have destroyed a sufficient number of cells to produce inflammation with its concomitant train of symptoms and physical signs. The microbes in mucous membranes and in the structures of the dermis and epidermis may really be living partly or wholly on live cells but without killing sufficient of them to produce disease. In fine, there is no definite borderland between pathogenicity and non-pathogenicity, and one cannot tell by looking at it whether or not a microbe is pathogenic.

The fact is that, if not a mixed infection from the first, a single invading microbe rapidly picks up enthusiastic allies from the inhabitants of the country it is invading; so that most acute and practically all chronic infections are, or become, mixed.

Let me take examples. The primary cause of appendicitis is usually the streptococcus: the abscess formed swarms with coliform bacilli, so much so that the colonies of streptococci may be overwhelmed and may not be found or, indeed, develop. Early enteric lesions are caused by the B. typhosus or paratyphosus: the deep ulcerations of the damaged Peyer's patches are produced by the intestinal microbes—B. coli and enterococci—and these as well as the enteric microbes get into the circulation and may produce damage to any tissue, commonly to the kidneys which excrete them.

The complications of scarlet fever and other fevers are principally produced by mixed infections. Gonorrhea is brought about usually

by the gonococcus alone, but how seldom does one isolate this microbe in pure culture?

Again, in seborrhea and acne, the overaction of the sebaceous glands is undoubtedly produced by the acne bacillus, but the resistance of the cells is constantly primarily lowered by the excretion of abnormal waste products produced by a chronic alimentary infection. This infection in turn is brought about by the swallowing of pathogenic microbes from the mouth or nasopharynx, which infects the alimentary tissues, lowering their resistance and allowing the B. coli to become pathogenic. Gout, rheumatoid arthritis, fibrositis, and neuritis are still more complicated, since the infection from the intestinal tract, producing chronic septicemia and the absorption of abnormal products of food-stuffs, interferes with normal metabolism; for instance, of the liver, interfering with its deaminizing functions and thus leading to the production of abnormal amounts of uric acid and urates which may be deposited as in gout, and, anyhow, help to produce abnormal hydrogen-ion concentration; this in turn interferes with the whole bodily metabolism and still further lowers the resistance of the tissues and the capacity of the phagocytic cells. The vicious circles are complete. Open tuberculous lesions are always mixed infections, and even in acute miliary tuberculosis microbes other than the tubercle bacillus have been isolated from the tubercles.

Finally the resistance of the body may be lowered by invasion, either primary or secondary, of animal parasites, *e.g.*, protozoal parasites, spirochetes, amebæ, and so on. In chronic amebic dysentery, for instance, it it not only the amebæ which damage the intestinal tissues but also the microbes. So too some cases of pyorrhea alveolaris are complicated by the spirochetes of Vincent's angina.

It is clear, then, that, since mixed infections are so constantly present, it must be essential, if we are to succeed in treatment, that the antigen used must contain all the infecting microbes. Let us think for a moment what may happen after a dose of a microbial antigen given under the skin. First of all there is a "local reaction" at the site of inoculation, which may be sufficiently severe to produce the phenomenon of inflammation stopping short of suppuration. There may be a "general reaction," rise of temperature, rise of pulse-rate, malaise, and so on, due to the absorption of unaltered toxins into the circulation; while at the site of infection there is a "focal reaction" owing to increased poisoning of the infected tissues with consequent increased activity of the infecting microorganisms, increased breakdown of tissue cells that are being attacked. This increased activity at the focus of infection, with its accompanying hyperemia, is compensated for—in a shorter or longer time—by the arrival of fresh antibodies, with consequent increased efficiency of the phagocytes and the killing off of the increased number of infecting organisms.

But supposing the infection is, as it so constantly is, a mixed infection and the antigen is not a complete one—one or other organism being left out—the consequence is that the increased inflammation produced by one or other of these microorganisms is not compensated for by the arrival of specific antibodies for that particular microbe and its toxins, so that the activity of that microorganism is increased, the resistance of the issues at the focus of infection is lowered to it, and there is no increase of resistance to that particular microorganism and no consequent efficiency of phagocytosis. The last state of the tissues at the focus of infection, and therefore of the patient, may be worse than the first. There can be no doubt at all that this is the case. Over and over again when a case was getting worse rather than better, have I found that I had omitted some necessary microorganism from my antigen. Such cases have, when the omission has been corrected, proceeded quite satisfactorily to cure.

3.—Dosage and Intervals

Having made sure that the antigen we are going to use for a particular case is of good quality and contains all the microbes causing the disease[1], that is, both the primary and secondary infections, it becomes necessary to consider the doses to be given to the patient and the intervals at which they should be administered.

The units of bacterial antigens have been variously estimated, *e.g.*, by the lethal dose, by weight, and by the number of microbes in suspension. The first two methods involve so much additional laboratory technic that for this and other reasons they are inconvenient. The number of microbes in suspension is readily ascertained, and is therefore very convenient; one million of microbes per C.c. in suspension may be taken as the unit. Originally, the dosage and intervals were estimated by the opsonic index. I showed, in 1905, the limitations of this method, and how the dosage founded on it was bound to give only very limited results; a prophecy which has been entirely justified by events.

For prophylaxis a few large doses will give sufficient relative immunity for a considerable time, indeed, will probably leave the patient always in a better position in relation to that infection than if uninoculated. But, in the case of an infected person, the dosage must be very nicely regulated so that the amount of inevitable additional poisoning at the site of infection will not be too great, while the stimulus to uninfected tissues will be adequate.

It is commonly thought that active immunization is an unsuitable procedure in acute infections, such as septicemia or pyemia; that, once the blood-stream is involved, our only hope is, the use of passive immunization with serums. There was never a greater fallacy. Active immunization gives most dramatic results in the most acute septicemias, in puerperal fever, wound infections, acute peritonitis, pneumonia, meningitis, acute pyelonephritis, and so on. So much so, that I make bold to prophesy the gradual disappearance of passive immunization, to which there are well-known objections. It must not be forgotten that most apparently localized infections, both acute and chronic, are not really so, for it is constantly possible to isolate the cause of them in the patient's urine. I isolated the cause of an iritis from the patient's urine, a few months ago.

If, however, the resistance of endothelial cells of the blood vessels is overcome and the tissues are no longer protected and capable of response, as in overwhelming hemorrhagic types of infection or towards the end of a chronic infection, then, of course, active immunization is impossible; but one can never really know until one tries.

One might naturally think that the initial dose would be especially small in acute infections as compared with that in chronic infections, but this is not so; there are many chronic infections in which, owing to the exhaustion of the patient or the site of the lesion, or both, the initial dose must be just as small as in acute infections. And further, it is remarkable that, in such cases as puerperal fever, pneumonia, and such like infections where there is not great anatomical destruction, recovery is brought about by from two to six small doses of antigen. It would appear as if the whole system were awake for the making of specific antibodies, giving a ready response to the specific stimulus; whereas in chronic infections, such as chronic bronchitis, chronic eczema, rheumatism, rheumatoid arthritis, etc., it is necessary gradually to build up the patient's immunity by a long course of eighteen or more doses.

As to the actual doses, in the case of the staphylococcal group, one can, as a rule, give ten times the dose of any other microbe. Supposing the case to be one of puerperal fever and the microbes *Staphylococcus aureus*, streptococci, and *B. coli*, then the dosage must be $10 + 1¼ + 1¼$, $25 + 2½ + 2½$, $50 + 5 + 5$, $75 + 7½ + 7½$, $100 + 10 + 10$ millions. It is very uncommon to need larger doses. If the case is a very severe one with rigor (my last patient, and she recovered, had a temperature of 106.8° F. in the armpit), the progression might be $5 + 1 + 1$, $10 + 2 + 2$, $15 + 3 + 3$, $20 + 4 + 4$, and larger if necessary.

In many cases, one has to begin just as carefully in chronic infections, such as third-stage cases of phthisis, mucous colitis, or middle-ear infections; but in chronic infections if the dosage is not carried up to at least 5,000 millions staphylococci or 500 millions of other antigens, the patient is not safe from relapse. It is frequently necessary to carry the dosage very much higher before the desired result is attained. In my third case of immunization, a case of chronic staphylococcal septicemia following acute osteomyelitis, I had to attain a dose of 30,000 million before the patient was cured. This was in 1905.

Spacing the doses is a puzzle to many. Quite frequently, doses are given at fixed intervals without any regard to the reactions of the patient; often, I am afraid, during a negative phase, and with dire results. The rules for spacing doses are quite definite. The following is my procedure in acute cases:

If, after an injection, there is an immediate fall of temperature and pulse, the next dose may be given in twenty-four hours.

If there is no effect on temperature and pulse, the next dose may be given in twenty-four hours.

If there is a rise of temperature and pulse, one must wait until the reaction has passed off for twenty-four to forty-eight hours before giving the next dose.

In chronic cases the rule is:

If there is no reaction after a dose (*e.g.*, malaise, rise of temperature and pulse, or increase of symptoms; that is, general or focal reactions), the next dose may be given after two clear days' interval.

If there is a reaction, wait for two clear days after all signs of it have disappeared, before giving the next dose.

The reason of this interval is, that the reaction sometimes does not come on for forty-

eight hours. If there is any doubt as to whether or not a reaction has completely passed off, it is much wiser to wait a day or two, rather than give a dose during a negative phase—in this case it is better to be too late than too soon.

[We are impressed with the rules, given by Doctor Crofton, for spacing the injections of vaccine (or "antigen", as he calls it). Many practitioners seem to find difficulty in this matter and ask for definite schedules. The rule of thumb does not work well in humans. It is always necessary to reason out matters.—ED.]

THE OSTEOPATHIC SCHOOL

Elsewhere in this issue, Dr. F. N. Shorb, an osteopathic practitioner, objects to some criticism of irregular cults that is contained in Doctor Thewlis' article that appeared in CLINICAL MEDICINE for May. Doctor Shorb claims that osteopathy is a system of healing, the equal at least of drug therapy, and he says that it should not have been classified with Christian Science and chiropractics. He makes good his contention that as much time is devoted to the teaching of human anatomy in osteopathic as in medical colleges and that the educational requirements for admission to both schools are of equal standard.

We can understand Doctor Shorb's objection to having his school included among several irregular cults that are based largely on pretense, and frankly admit that there are a great many osteopathic practitioners who are not only successful but also efficient. In the degree in which the osteopathic forms of practice develop and in which the practitioners of this school gain recognition, it must be acknowledged that they approach the methods of the regular school of medicine more and more. In fact, it is an open secret that osteopathic physicians use drugs and biological remedies to a very considerable extent, although originally the school was based on "drugless" therapy.

When Doctor Shorb claims that osteopathy is . . . "a system of healing the equal at least of drug therapy" . . . he employs a limited diction which shows the erroneous conception that most people have concerning the essential differences between regular medicine and the irregular schools of healing. Regular physicians are usually said by these people to practice "drug therapy," as though this fact itself formed the most essential and important characteristic and, furthermore, as though it were an exclusive and inevitable peculiarity of the regular practice of medicine. Nothing can be further from the truth, because the utilization of the drug armamentarium, as it is taught in the courses and textbooks on materia medica and therapeutics, is only one of the numerous means that the regular practitioner avails himself of in the management of his cases and his patients. Indeed, if osteopathic physicians originally made a great point and, in fact, made a virtue of eschewing the prescribing of drugs (from which they have decidedly departed) and if Christian Scientists and Chiropractors, New Thoughters, *et id omne genus*, consider the use of drugs as the main differential characteristic, it should be well known that practitioners of medicine have at their command and at their disposal every single method of healing that has ever been proposed, and that it is legitimate for them to employ any of them singly or severally, as they may think best, to attain the desired results, namely, the restoration of health.

It is a peculiarity of irregular cults that they are limited in the remedial agents, or methods, which they propose; that they make claims concerning the causation of disease which are most convenient to them in the administration of their method. This is seen readily in Chiropractic practice which consists of spinal adjustment and, consequently, refers the origin of all disease to the necessity for spinal adjustment. In a degree, as the adherents of such special cults acquire greater knowledge, they always are found to approximate the teachings of medicine or of the regular school of medicine and, thus, they eventually are absorbed unless they simply die out and disappear. It is in this manner that the homeopathic school of healing is gradually being absorbed in the medical profession at large, and the osteopathic school has started to follow suit.

THE OSTEOPATHIC SCHOOL

My attention was recently called to an article in THE AMERICAN JOURNAL OF CLINICAL MEDICINE, by Dr. Malford W. Thewlis, entitled "The Pseudo-Medical Cults," in which he says:

[*Continued on page 674.*]

Surgical Seminar

Conducted by GUSTAVUS M. BLECH.

Plea: Not Guilty

WE are very glad to be able to publish, and to reply to, the following letter, which comes from a general practitioner of Chicago:

Editor, "Seminar:"—Your request for frank expressions of opinion regarding the "Surgical Seminar" encourages me to say to you what I have felt for some time to be a fact and of some importance to the reader-class of THE AMERICAN JOURNAL OF CLINICAL MEDICINE.

I do not want to fall into the error of "covering up" with nosegays the criticism I have to present. It is a generally acknowledged fact that your method of teaching is not only original, but as close to actual clinical teaching as the printed word can possibly accomplish. I have spoken to a number of my friends who are of the same opinion. The "Seminar," accordingly, is a department of the Journal which makes the Journal itself characteristic of its program to help along the struggler at the bedside.

Nevertheless, I am constrained to say that, sometimes, you are altogether too much a dyed-in-the-wool surgeon. Not all of us have had surgical experience enough to aim as high as you often do, and, in the problems of our actual work, we seldom come into positions to make difficult diagnoses ourselves—that's what consultations are for—but, more often, we wonder whether apparent cases of a surgical character are not actually medical ones; or, vice versa, whether apparently medical cases should not be handed over to a competent surgeon for attention and care.

If the "Seminar" were to bear in mind that, with general practitioners, at least, few cases come to the operating table, and that many socalled surgical cases escape surgical operation simply because no dyed-in-the-wool surgeon got a hold of them, I am satisfied that it would prove of inestimable value to the entire medical profession. Please note that I am sending this as a matter of constructive criticism.

If you think it worthy of publication let it appear that it was signed by "Caduceus II".

Reply

First, I beg to be excused for replying in the first person. The criticism presented by Dr. "Caduceus II" is obviously directed against the person rather than the editorial management, for, as a matter of fact, the Managing Editor has let me have free rein as regards this particular department, and I assume full responsibility for the "Seminar" in its entirety.

The charge that I am a dyed-in-the-wool surgeon is not based on fact. The mere circumstance that I am no longer a general practitioner—I have been one for many years—and, for a number of years past, have restricted my practice to general surgery and operative gynecology, will, as I shall show, prove me innocent of the charge.

I repeat, I have been a general practitioner for years. That means, I have treated baby X, for diarrhea and, a day later, delivered his mother or aunt of twins. That means, that I was sweating blood trying to sew up an ugly scalp wound on bricklayer Y, who worried me because I could not tell whether he had a fracture of the skull, only to "nurse" him through a case of double pleuropneumonia a week later—and "him" an alcoholic, to boot. That, further, means that Mrs. Z., fat-bellied and fidgety, had peculiar pains in her upper abdomen and I was scared to death lest my "preliminary" diagnosis of "cholelithiasis" would prove erroneous—if she decides to seek the service of a public hospital. And, yet, deep in my inner heart, I knew that I was just as incompetent to make an exact diagnosis of "gall-stones", as any renowned surgeon on this globe of ours. I had my Elliott obstetric forceps repaired and renickeled several times, before I made up my mind that I was morally justified to hold myself out as a surgeon.

Some time later, the Professional Publishing Company, of Philadelphia, published a small volume from my pen, entitled "Borderland Surgery". This was nothing more nor less than an exposition of conservatism in surgery.

Impressed by the late Nicholas Senn's attack on what he aptly termed *furor operativus,* I carried his desire, to see surgery reduced to the inevitable minimum, to systematic execution, including more or less extraneous matters, which, however, had a direct bearing on surgical mortality and curative failures.

I have no "religion" in the common acceptance of the word. I am not affiliated with any church. I do not have to have, either, because, whenever I have a patient before me who suffers from a disease, the diagnosis of which is not absolutely certain or the character of which is not absolutely calling for operative therapy, I invariably ask myself: "Supposing you were he—what would you decide?"

And it is only when I feel that, if it were I in the patient's place, I should absolutely want my abdomen, chest or brain explored, I tell the patient the verdict of operative therapy.

Perhaps this is a course that produces neither glory nor heavy bank accounts, but, I have been living so many years without either, that I would not know what to do with them, now that I have passed two-score and ten. Thank heaven, I still have some ideals left.

If all this be true, there can be no doubt that I would not turn about in the management of the "Seminar." I go a step farther and maintain that I even had no opportunity for such a change of front.

My first idea was, to make the "Seminar" a means of developing surgical reasoning on problems of a diagnostic character. I did not desire to restrict; and have not restricted the problems to those that actually occurred in my own practice. If the latter predominated, the fault is not mine. Too few have come forward with their own experiences.

Lately, I have taken up operative problems. This, too, may have given the appearance that I can think of nothing else than surgical diagnosis and surgical technics. But, I have virtually only begun. I had to feel my way. It is for this principal reason that I asked for criticisms. *Aut Caesar aut nihil!* The "Seminar" was either to interest the readers and prove useful, or else be abolished.

For some time past, I had in mind the presentation of "borderland" problems. "Caduceus II" 's letter has served to strengthen my belief that this class of problems will enhance the value of the "Seminar." I am and (I am sure) we all are deeply grateful to our correspondent for his helpful criticism. But, as for the charge that the editor is a dyed-in-the-wool surgeon—I hope you all will agree with the verdict of—Not guilty!

Surgical Therapeutic Errors

In the July issue, we published a letter with the following inquiry: A man, about 30 years old, was treated in vain for symptomless hemorrhages from the bladder. Cystoscopy showed a papilloma. Therapy: Extraperitoneal incision of the bladder-wall showed several broad-based tumors. Excision of the area containing the tumors and longitudinal suture of the wound surfaces of the bladder in the axis of the body. Closure of the bladder incision with soft rubber drainage (intravesical). For three days, there was troublesome hemorrhage from the interior of the bladder.

Required: Source and cause of the hemorrhage.

Solutions:

Several solutions have been sent in, but, as they were presented without explanations, they cannot be published.

Dr. R. B. Gray, Bay Shore, New York, contributes the following very interesting solution:

Analysis of the case leads to nothing that can be attributed to the age (30) or the sex (male). Of the occupation, nothing is stated. If the patient is an aniline worker, this may be a cause, as the dyes are excreted by the urinary system and cause neoplastic growths in the bladder.

As it is stated to be a frank case of hemorrhage, no note need be taken of hematuria; but, at times, the etiology is the same.

Since hematuria is itself a symptom and not a disease *per se,* I can not see how we can have a symptomless symptom! Is it like *scarlatina sine eruptione?*

In my opinion, the patient was warranted in being "quite worried", for someone has written, *Blut ist ein ganz besonderer Saft.*

The writer may say that the blood came from the papilloma, but he did not put it in his letter. If it did, why did the bleeding continue after the operation?

The attendant did right in using the cystoscope for diagnosis, but it is here that he and I part company. Why did he not carry the idea to its logical conclusion and use a cystoscope in the treatment?

In his "Traité de Cystoscopie et d'Uréthroscopie" (page 361), Luys (English edition by Wolbarst, St. Louis, Mosby, 1918, page 330) says: "At the present time, it is considered neither rational nor reasonable to perform a suprapubic cystotomy for a small vesical papilloma, and even for larger papillomatous masses. The endovesical treatment must be considered the method of choice."

Under etiology, always bear in mind that the medicine may produce bleeding, as is seen in the use of formaldehyde compounds of whatever trade name.

Osler says that hematuria may occur in the following conditions:

Edemic fluke, Bright's, aortic disease, cerebrospinal fever, chronic interstitial nephritis, lobar pneumonia, polycystic kidney, pulmonary tuberculosis, purpura, haemorrhagica, relapsing fever, renal calculi, renal cancer, scarlet fever, scurvy, smallpox, splenic anemia, tuberculosis of kidney, melanuria; and, some say that catching cold produces paroxysmal bleeding.

Under treatment, I would suggest: Electric fulguration through cystoscope with periodic inspection of bladder.

If needed, radiotherapeutic; and, if better thought of, x-ray treatment with deep penetrating rays.

Try to remove the cause, if it can be done with safety and comfort to the patient.

Editorial Comment

Dr. Gray's highly instructive discussion again discloses him as a versatile writer and student.

While we are agreed with much that he says, we are confronting certain facts, on which alone we can base an opinion.

The question, when bleeding from the bladder can be called symptomless and when not, is a simple one, since it is not meant to convey thereby that hemorrhage is meaningless, simply because there is no distress, pain, dysuria, and the like accompanying the bleeding.

A contributor, who has the ability to open a bladder, excise a portion of it and close the wound, *lege artis,* can be assumed to know his métier and to have the ability to present all interesting facts intelligently. Even though I did not happen to know the contributor, as I do in this instance, personally, I would say to myself, the man is a surgeon of ability. His allusion to his surgical technic proves this conclusively. I mention this for the sole purpose of dismissing from our minds any idea that the excised area was not closed properly.

Now, we are not facing the problem of whether excision is preferable to fulguration, or vice versa. We are, however, up against this proposition: On an entirely correct diagnosis of multiple papilloma with broad bases, the tumor-bearing area is excised and properly closed. After the operation, there is bleeding from the depth of the wound, that is to say, from the interior of the bladder. What is the trouble? If there had been a varicose condition, if there had been any of the causes ably presented by Dr. Gray, our young surgeon would have given them, because, he undoubtedly, devoted a lot of thinking to the case during the annoying postoperative period. But, nothing is given; therefore, no tangible cause was found.

Yet, I, as editor, had the gumption to place this case as coming under a group to be headed as "Surgical Therapeutic Errors". (If others are sent in, we will number this one 1, and the others serially.)

But, in my opinion, the error was not in the selection of the therapeutic measure itself (excision) as in the method of closure of the wound.

Our correspondent is not to be blamed, since, in several American and English textbooks on genitourinary surgery, this particular subject is handled in stepmotherly fashion.

I write this on a Sunday afternoon, in my den, and I have but few literary sources available. Let us see what they contain.

Keyes (1903): Excision. "The only special features of the after-treatment are the prevention of hemorrhage and rupture of the bladder. Both of these dangers must be foreseen at the time of operation and prevented by adequate suturing."

J. W. Thomson Walker (1914): "If a number of papillomas are situated close together, the whole area of mucous membrane bearing them is removed in one strip. At the end of the operation, I treat the bladder with silver-nitrate solution, 5 or 6 percent; formalin, 1 in 300; resorcin, 10 percent, or other albumin-coagulant, with the object of destroying stray cells or microscopic papillomas. The bladder is drained through a large suprapubic tube and washed daily with weaker solutions of these drugs." (The wounds are closed with catgut, in the accompanying illustration).

It will be noted that ordinary suture is mentioned by both authors and, accordingly, our correspondent has undoubtedly followed this method in the usual manner.

Here is, however, where the error was committed, unintentionally, unwittingly and unavoidably; but error it was, nevertheless.

Permit me to present the "solution" in the manner in which I wrote the correspondent personally.

My dear Captain:—

It was a source of great pleasure to me to receive your letter regarding your bladder operation. I am particularly happy that it is the "Seminar" which is the immediate cause of reunion with an old war-comrade. While

I shall publish your case, which has a decidedly interesting phase, (so as to afford our readers time for discussion), I embrace the opportunity to let you have my own frank opinion.

From a purely operative point of view, I recognize two classes of papilloma, namely, those with a narrow pedicle and those with a broad base. For the former, an extraperitoneal approach is sufficient, as then the patient is in the Trendelenburg position and, with good retraction, accessibility to the interior of the bladder is good.

As regards the latter class, many should be treated by fulguration. My rule is, when these tumors are not too large, to refer them to a urologist who has the proper equipment for fulguration therapy. When, however, the tumors are not only multiple but of large size, I prefer to do exactly what you have done. In excising each tumor, I begin by placing a long linen thread through the healthy mucosa on either side of the growth. These threads serve as guides and enable the operator to raise up the entire field so as to render it more accessible.

The excision itself is elliptical in shape. Now, beginning at the apex of the ellipse, a sharp knife cuts through the healthy mucosa adjacent to the tumor, but only a small piece at a time, which is immediately followed by suture of the little wound. Dissection is now continued and sutured for another short distance until, gradually, the entire area has been removed to the lowest point of the ellipse, when one suture terminates the operation proper.

It is only by this step-by-step excision and suture that absolute control of the hemorrhage is assured, rendering packing and postoperative irrigations unnecessary.

If you have any scruples as regards the danger of implanting tumor-particles into the operative wound—which is not an impossible thing—and if you are not sure that you can excise sufficient of the submucosa, I know of no better way than first to destroy the growth with the thermocautery and then to excise in the manner I have suggested.

I have done a very few of these operations, but so far have had no complications whatever. This, by the way, is a method which has proved excellent in the hands of Professor Vœlcker, of Halle, and is very much in vogue in Germany at this time.

Surgical Problem No. II

You are called to see a young man (25) who has been under care of a physician for a few days; but the latter tells you that he has been unable to arrive at a diagnosis.

A glance at the patient shows a seriously ill, rather emaciated looking young man, who appears to be half asleep and apathetic.

The history elicited by you is not satisfactory. The patient maintains that he has not been feeling well for some time, suffering from discomfort in the abdomen, but that he has been able to do work as a typesetter until a few days ago; when he began to lose strength quickly and had to take to bed. He tells you that, occasionally, he has diarrhea but, more often, is rather constipated.

You examine the abdomen first. There is no protrusion or irregularity of the contour. There appears to be a slight rigidity of the right rectus muscle and an irregular, ill-defined mass, or what appears to the feel to be a mass, in the right side of the abdomen. Deep palpation over the appendix causes the patient to say that he feels some pain there.

The face, as said, is expressive of apathy. The tongue is moist and not coated. The heart sounds are too faint to be interpreted. The lungs appear to be clear. Examination of the pulse proves futile—it cannot be felt. The patient gives intelligent replies to any question proposed and appears even curious as to what you have to say about his condition.

Required: Diagnosis. Treatment based on the diagnosis.

The General Practitioner

Talks About Professional and Personal Problems
Conducted by WM. RITTENHOUSE.

The Efficiency of Insufflation

J. D. S. writes: "When I was listening to your lectures on obstetrics, at college, you used to describe a method of reviving newborn infants who fail to breathe promptly; I have lost my notes, and should be glad to have you give your readers a description of the method, showing just how to use it."

Answer: The process to which my correspondent refers is insufflation. The longer I was engaged in the active practice of medicine, surgery, and obstetrics, the more I was impressed with the value and effectiveness of that procedure as a means of reviving infants in danger of asphyxia neonatorum, patients collapsing under anesthesia, or the victims of gas, smoke or drowning accidents. I have long felt that the advantages of this process are too little appreciated by the profession and many do not even know that there is such a procedure.

In the emergencies named in the foregoing, delay is liable to be fatal. A single minute may make the difference between life and death, and this is what renders insufflation of such supreme value; for, it requires no apparatus, is always ready and can be applied without a moment's loss of time.

Description

Insufflation means "breathing into", and this definition is as simple as the procedure itself. As its most frequent use is in resuscitation of the newborn, I will describe the details of such a case. With older patients, there is little modification of these details necessary; such as are needed will suggest themselves.

When a newborn infant does not at once breathe or cry, its pulse should be felt by compressing the cord close to the body between finger and thumb. If the pulse is vigorous, all is well; breathing will soon follow, especially if the child be suspended head downwards. It is an aid to blow upon the front of the thorax, as the current of air feels cool by contrast and tends to excite an inspiration.

If there is no umbilical pulse, press two finger tips under the edge of the ribs on the left side to detect heart action. If it is feeble or absent, insufflation should be begun at once.

Seize the infant by the ankles, suspending it head downwards. Compress the thorax to force any fluid out of the air passages; wipe out the mouth and throat with gauze wrapped around the little finger; then lay the child on a sloping surface with the head a little lower than the body; place a towel over its face to protect the operator's lips; hold its nose with finger and thumb to prevent the escape of the air blown in; all this more quickly than it can be written. Now place the lips exactly over the child's mouth, and blow with gentle force through the towel to inflate the lungs. At once compress the thorax with one hand to empty the lungs. This constitutes the whole process: alternately inflating the lungs by blowing into the mouth, and emptying them by pressure. This should be repeated about as often as slow breathing—say once every three seconds more or less.

Unless the infant is really dead, signs of revival soon become manifest. The skin takes on a pink hue, an occasional heart-beat can be detected, or there may even be a gasp for breath. If any of these signs are apparent, the insufflation should be continued a little longer until respiration becomes regular.

While this is being done, every possible means should be used to preserve the body heat. Heated flannels can be laid over the child's body without being in the way.

An important question is, how long one's efforts should be continued when no response is visible. It is not practicable to lay down any invariable rule, further than to say, do not give up too soon. I revived one infant after forty minutes of steady work. The symptom that encouraged me to persist was, a slight improvement in the color of the skin— a little tendency to pinkness. But the first real proof of success was a feeble gasp after thirty minutes of regular filling and emptying of the lungs.

At the end of forty minutes, there was spontaneous respiration. These figures are from memory, but they are substantially correct.

In similar cases, I have made comparative tests between insufflation and artificial respiration. In several instances, I have seen feeble heart action, which had been developed by insufflation, die out after changing to artificial respiration, only to return again on changing back to insufflation. This is pretty good comparative evidence of the efficiency of the two methods. The reason seems to me plain: In insufflation, the air *must* go into every part of the lungs because it is forced in; in artificial respiration the inflation of the lungs is often only partial.

In collapse under chloroform anesthesia, I have had a number of opportunities for observing its efficiency. A young man of twenty-four, while under chloroform for a minor operation, suddenly ceased to breathe, and no heart action could be detected. While an assistant tilted the table so that his head was considerably lower than his body (this is very important), I began to insufflate without a moment's loss of time. For seven or eight minutes, the case looked desperate, and then the death pallor gradually began to change to normal and, soon, respiration and circulation were fully reestablished.

In another instance, I had circumcised a boy of seven years. After the operation, but before consciousness was fully restored, we were about to put a dry night shirt upon him. While my back was turned for a moment, the father, not knowing what a risky thing he was doing, lifted the boy into a sitting position, with the result that might have been expected—instantaneous and complete collapse. With a group of wailing, hysterical relatives on my back, I did not find it a simple matter to carry out the measures necessary. But, by the use of some strong language, I brought the father to his sense enough to get some help from him in keeping the patient in proper position with head lower than the body, while I quietly and regularly produce alternate insufflation and expiration. The contest was a long one and, as I worked, visions of malpractice suits flated through my mind. I had almost despaired of success, when at last I saw signs of returning life, to my very great relief.

At another time, I had a case of pleurisy in a little girl of ten. The right pleural cavity had filled up with pus. I resected a rib and put in a rubber drainage tube. The patient did well, and the time was approaching when I hoped to be able to dispense with the tube. The child was feeling so well that her activity was greater than was good for one wearing a rubber tube in the pleural cavity. One morning, I found that the safety pin had pulled off the end of the tube, the greater part of which was lost in the thoracic cavity. After a few unsuccessful attempts to recover it, I put the child under chloroform, and finally removed the piece of tubing. I had hardly done so when breathing and heart action suddenly stopped. Ten anxious minutes of steady insufflation saved her life, and she is today the mother of a numerous and happy family.

One day, I entered the operating-room of the now extinct Illinois Hospital just in time to hear the operating surgeon say, "I'm afraid he's gone." The patient on the table had collapsed, and they had been trying unsuccessfully to revive him by artificial respiration. It was in the days before pulmotors had been heard of. On my suggesting insufflation, the surgeon replied that he was not familiar with it, and requested me to try it. I did so. In less than ten minutes, the patient was breathing.

I could go an enumerating similar cases, but these are sufficient to explain why I have such confidence in this procedure. I have never been able to understand why it has received so little attention from the profession.

Advantages

Its chief advantages are:

1.—It can be used at a moment's notice by anyone.

2.—Its simplicity, requiring no apparatus.

3.—Its thoroughness, forcing the air into every part of the lungs.

The first of these advantages is so important that it can scarcely be overestimated. Especially is this true in asphyxia neonatorum and in collapse under anesthesia. The delay of even half a minute may mean the difference between life and death and, certainly, diminishes the chance of success. Even the adjustment of a pulmotor takes a little precious time and, in many cases, perhaps most, the machine has to be sent for to a greater or less distance.

In one case where a pulmotor had been sent for, I used insufflation while waiting, and had the patient breathing when the apparatus arrived, somewhat to the disgust of the salesman who brought it. He missed his sale.

Objections Answered

The following objections to the method have been suggested theoretically by those not familiar with its use:

1.—It is asserted that we force into the lungs air which has been deprived of its oxygen, and which is loaded with carbon dioxide.

2.—We may injure the delicate tissues of the air cells of the infantile lung by using too much force, overdilating them.

3.—The operator might infect himself with certain diseases from the patient.

4.—On the other hand, he might infect the patient, if he were the victim of syphilis or tuberculosis.

The first objection has, at first sight, a certain degree of plausibility. But a little examination will show that this is more apparent than real. In fact, the objection as worded does not accurately state the facts. It is not correct to say that the insufflated air has been deprived of its oxygen. It has lost *some* of its oxygen, but enough remains to serve the purpose of reviving the patient, as is proven by the results.

If the doubter will refresh his memory by referring to any standard work on physiology, he will find that respired air has had only a part of its oxygen replaced by carbon dioxide. This fact is self-evident to any one familiar with the laws of the diffusion of gases.

If it were a question of a continuous air supply, there would be some importance in a reduced proportion of oxygen; but, as it is simply the problem of tiding over an emergency, it follows that, if the air breathed into the infant's lungs contains enough oxygen to serve the temporary purpose, that is all that is necessary; and experience abundantly proves that it does.

Another fact has been overlooked: When the doctor inhales a breath, and immediately proceeds to expire into the air-passages of the infant, the first air that enters is that which was in the doctor's mouth, pharnyx, larnyx, and trachea, and which had lost *none* of its oxygen. I am inclined to think that this fact is a real explanation of the prompt and satisfactory results obtained by insufflation. In every expiration of ordinary breathing, the first half of the expired air is but little contaminated with carbon dioxide, while the last half contains a larger proportion of that gas, and correspondingly less oxygen.

Objection number two is not a weighty one in my opinion. I have never heard of a case in which the air-cells were over dilated. They are very elastic, and very little force is required. If the thorax be held lightly between the thumb and fingers of one hand, the expansion can be plainly felt, and experience soon teaches the operator what a small amount of force is required to obtain that expansion. It may be assumed that any one intelligent enough to manage a labor case, would know better than to blow into an infant's lungs with all his might. In any operative procedure, we have to assume a reasonable degree of intelligence in the operator. Machines can be made fool-proof, but operative procedures can not be made so.

The other two objections, relating to the danger of passing infection from the patient to the doctor, or vice versa, may be disposed of in like manner. Possiby, syphilis or tuberculosis might be thus communicated, but only under circumstances of the grossest carelessness. The danger is practically nil.

I am not belittling the use of the pulmotor, nor of artificial respiration. The pulmotor is an efficient instrument when it is at hand and ready for use, but in a large proportion of cases it is neither at hand nor ready for instant use; and the time lost in sending for it, and even in adjusting it, may be of the utmost importance.

Of course, artificial respiration can be applied as quickly as insufflation; but experience has abundantly shown that the inflation of the lungs is more thorough and, consequently, more efficient by insufflation than by artificial respiration.

In the case of persons apparently drowned, it is of great importance, in addition to using insufflation, to get all the water possible out of the air passages and also out of the stomach, because the pressure of a stomach full of water would prevent to some extent the inflation of the lungs.

To do this quickly, lay the patient prone (i. e. face down) on the ground. Let one person stand astride of the body, facing towards the head. Put both hands under the body at the stomach line, and lift it about a foot from the ground, pressing and kneading the stomach with both hands. While this is being done, another person should lift the face slightly, bending the neck backwards, and should seize the tongue, pulling it out as far as possible. This gives free passage to the water that may be in the lungs or stomach.

This should be done quickly, and then insufflation should be begun. Lay the body on the back, on a slope with the head lowest. Apply artificial heat while insufflating; this is important. Do not give up too soon. Cases are reported of success after two hours.

In asphyxiation from gases of various kinds, plenty of oxygen is of the utmost importance. So, insufflation should only be used until a pulmotor can be obtained, with which air or, better still, oxygen can be pumped into the lungs.

To My Readers

Those correspondents who have not received replies to their letters during the last three months are hereby informed that the reason was a prolonged illness and vacation on my part. Those letters will be answered now as rapidly as possible. My thanks are due to the writers for their patience, and also for the many kind letters of appreciation which I have received regarding the "Boy and the Farm" in the July and August issues. It shows that many doctors were farm boys, and that they have not lost the warm spot in their hearts for the old farm and their boyhood's experiences.

2920 Warren Ave.

[*Continued from page 666.*]

"Can any Christian Scientist, osteopath, chiropractor or 'healer' of any kind name a single man who has done serious scientific work? The answer is obvious. Such men have nothing to offer except certain theories, which, they claim, will make possible the cure of all kinds of diseases. Have they standards of education? Is there a college degree (or any preliminary education) required before a student is allowed to enter such schools? . . . .

"The graduates of such schools have no knowledge of human anatomy or physiology and their success depends upon having patients who have little knowledge of the human system."

Since the science of osteopathy is recognized, by all who are informed, as a system of healing, the equal, at least, of drug therapy, its classification under the above-mentioned title is erroneous.

In the first paragraph herein quoted, Dr. Thewlis does not state his accusations as facts but makes insinuations by questions which I shall anwer in their order.

Osteopathy *has* not only a single man but an institution doing serious scientific work.

Osteopathic schools *have* a standard of education equal to that recommended for the Association of American Medical Colleges, as the enclosed comparison sets forth.

There *is* a standard preliminary education required for entrance into osteopathic colleges.

The statements in the second paragraph, concerning osteopathy are flatly false. Osteopathic schools spend more time in the study of anatomy in its various branches than is recommended for the Association of American Medical Colleges. The number of hours spent in the study and laboratory work of physiology is equal to theirs. The total number of hours for the four years' osteopathic work is greater than that of said colleges. So, you see, Mr. Editor, none of the statements made by Doctor Thewlis apply to osteopathy, at all.

If Doctor Thewlis had so grossly misstated scientific facts, he would be ridiculed by every well-informed reader of his article. Shall misstatements injurious to a rival profession, made either through ignorance or by design, receive less rebuke? When I asked my medical friend the question, he replied, "There are always a few who will write such stuff and, occasionally, get by with it."

But, I am wondering, Mr. Editor, how the statements quoted were allowed space in a periodical of the high standing of THE AMERICAN JOURNAL OF CLINICAL MEDICINE. It seems to me such errors must lower the standard of your journal, very materially.

D. N. SHORB, D.O.

Bloomington, Ind.

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[In a clipping from "The Log Book," evidently a college publication of one of the osteopathic schools, comparison is given of the educational requirements of practitioners in medicine and osteopathy who are licensed to practice in Alberta and of chiropractors who are not licensed to practice in the province of Alberta. From these requirements, it appears that those demanded for admission to the study of medicine and osteopathy are virtually identical, comprising mainly high-school English, algebra, plain geometry, foreign languages, history, physics, general science, chemistry and physiography. On the other hand, not any of these requirements are insisted upon by the Palmer School of Chiropractic.

The fundamental studies in the healing art which are given in all schools and which range from anatomy and histology to psychiatry are given in this comparative list as consuming 7068 hours in medical colleges; 7078 hours in osteopathic colleges and 495 hours in the Palmer School of Chiropractic.

It must be admitted unhesitatingly that the osteopathic colleges not only demand proper educational qualifications from their students on admission to the college, but that they offer full courses of study which, in some instances, exceed those of medical schools. For instance, while medical colleges devote 128 hours to histology, osteopathic colleges give 180 hours. For anatomy, the comparative periods are 528 hours for medical, 722 for osteopathic schools. For physiology, 280 hours in medical colleges, 322 hours in osteopathic schools. In other

[*Continued on page 678.*]

Good Medicine

Let us learn as we go, but not forget what we know

Conducted by GEORGE H. CANDLER.

"You are old, Dr. William," the young man said,
"And your study of people's been long:
Don't you think that the women in this advanced age
Are going a trifle too strong?"

"In the days of my youth," Dr. William replied,
"My Granddad (I hope he sleeps well!)
Was oft heard to say that the girls of my day
Were undoubtedly headed for H—l!"

"I also recall," the old man reminisced,
"That at times with exuberant joy,
My Grandsire's brag, as his chin whisker'd wag,
Of the *affaires* he had, when a boy."

"You are gray, Dr. William," the young man remarked,
"Yet I note with no little dismay
That you wink thro' your glasses at each girl that passes—
Do you think that is strictly *au fait?*"

"In the days of my youth," Dr. William avowed,
"I winked at 'em just as they came,
So the habit got set and I wink at 'em yet
And I imagine I'm still in the Game."

MORAL: The old dog knows lots of the new tricks.

Oh! Man

"The Proper Study of Mankind is Man"

LONG, long before you and I *were,* some unfortunate who then *was* had this idea, jotted it down and it has become an aphorism. Personally, I am of the opinion—if the term MAN applies to the *living* subject (dead ones are simple)—that, the more you study him, the less you know and, the less you know, the more apt you are to pose as an "authority." You may have observed that there are an awful number of men and women studying MAN both as he is and as he might or should be, and the conclusions they arrive at are so varied as to make one vertiginous. Therefore, to clear the atmosphere and because I feel that I am just as good an "authority" upon this vital subject as anyone else, I purpose to say a few words which will, I trust, be understandable even to the uneducated, and fairly unobjectionable even to the unsophisticated. The *intellegentsia* and *cognoscenti* may, of course, criticize my method of presenting the deductions I have drawn, but they will hardly care to challenge their truth.

Let us begin by accepting that beautiful definition of Man as "a little lower than the angels, a little better than the brutes."

There can be no question but that is just what he *is.* Of course, I have never seen an "angel" and am not quite sure about his general makeup. But, basing my opinion entirely upon certain beautiful pictures I have seen and on highly imaginative descriptions I have (under threat and duress) perused, I feel convinced that MAN *is* "lower than the angel"—

quite a long way lower. Almost out of sight of 'em, indeed. Further, having enjoyed a reasonable degree of familiarity with "the brutes"—from hogs to horses and caterpillars to cows—I must admit that Man, as I know him, is most distinctly "a little better." True, there are exceptions that were more human than some *men* I have studied and, once or twice, I have encountered creatures masquerading as Men who *must* have come out of cocoons. A most ridiculous person once said that every human being resembled an animal, and proceeded to prove his point with illustrations. The unfortunate quadrupeds could not, of course, sue him for libel; but, had that been possible, any court of competent jurisdiction would have given judgment in their favor—with heavy damages. For, it is an adage in law that "the greater the truth, the greater the libel."

You know men who look like Hogs—but, would they make good breakfast bacon? I know women who look exactly like cats—but, are they any good as mousers? Not the least bit. Perhaps, we all, too, have some antique female relative who facially distinctly resembles a cow; but, could she be depended upon for dairy purposes or could some other, equine-appearing, member of the family be "ridden" with impunity? I wot not! When it comes to appearances, MAN is deceitful, ever. WOMAN perhaps worse than that. In other words, they may *look* only a "*little* lower than the angels"; but, most distinctly, they are not what they appear to be and, though they may seem a little like the animals ("brutes that perish"), they really are in that unfortunate condition known as "*betwixt* and *between*"—that is to say, neither one thing nor the other. A most humiliating position, I say. Just how MAN manages to draw such an undesirable position in the scale of creation, who can say?

That there may have been a common origin, would seem to be proven by the fact (1) that, when infants have "wind on their tummies" they smile in their sleep, angels then whispering to them words of comfort; (2) that there is more of the monkey in MAN than there is MAN in the monkey.

William J. Bryan may (as a matter or principle) dispute the first hypothesis, but I challenge him to successfully combat the second. Psychoanalysis will compel him to admit this as a living truth. One, indeed, of the few really viable ones today.

Still—if further evidence is needed—witness the desire so many aged men experience to incorporate *more* monkey into their make up. Just so they can "monkey" some more. "With age" they say "comes wisdom." Studying MAN "as he is," one wonders what particular kind of "hop" the creator of that old saw used? I would offer as an amendment: "With age comes that accommodating ape"—higher anthropoid, of course.

Having thus definitely demonstrated that MAN is neither a scion of the Seraphim nor a true shoot from the simian tree, we are confronted with the outstanding question, what *IS* he? For centuries, poets, priests and pedants have been advancing their views upon this subject; but it has remained for *ME* to present the true solution of the problem. Perhaps, the Sphinx also possessed definite knowledge along this line. However, so far, He, She or It (I never was certain of the Sphynx' gender) has failed to convey it—even to the trance mediums. So, my claim to priority stands. Before, however, I postulate my theorem, I feel constrained to dispute the growing impression that MAN may be defined as an "EGG"—hard boiled, soft boiled or scrambled, as the case may be. I have been deeply depressed by witnessing the unthinking general acceptance of such a classification. Had a fourth class been added—egg-*plant*—I might not have considered the grouping as so unjust. For, MAN—speaking of him as a species—*is* either Hard, Soft, Scrambled or Vegetative. That he is also *ex ovo*, moreover, cannot be successfully denied.

At this point, it may be well to recall the exquisitely expressive epitaph which appears upon the last resting place of an otherwise unknown English female:

"Here lies the body of Martha Crump
Who, when she heard the angels' trump,
Quick cracked the shell that held her in
And hatched herself a Seraphim."

The poetry is not above reproach, but the sentiment, to say the least, is beautiful. One gathers, quite definitely that, though Martha might have been shell-bound, she *scrambled* all right upon receiving proper encouragement. Doubtless, the adherents of the "egg" theory will regard this as proof positive of the correctness of their stand. Still, having better information, I cannot regard it as even *prima facie* evidence. One might as well accept the absurd though very common opinion that most Men are "nuts" because there are a lot of McNutts in Scotland! Upon just such fallacious reasoning are many of our ideas about things founded.

It may, of course, be granted that certain individuals merit the appellation "hard-boiled."

They *are* hard! But, is one, using such a metaphor, really justified in adding "egg?" The egg of the domestic hen should be spoken of affectionately—even reverently, at times. Without it, we could never have revelled in eggnog (they don't make them any more) and fresh and just "set" (three minutes) it greets us, a gold and white picture in crystal setting, when we have to meet the family at breakfast. Even hard-boiled it is welcome—especially with anchovy trimmings. Then, without considering the many other uses of the egg, remember that, from it—and it alone—we get chickens and, who would want to live in this dreary world if there were no chickens! "Somebody else; NOT me!"

MAN is *not* an "egg," and it is not fair to the egg to even make the comparison. Furthermore, he is *not* a "Fish," despite assertions to the contrary. Fish know enough to stay in their natural element; man doesn't. Fish get the worms; the worms get Man. Fish like sunshine filtered through water; man likes moonshine unfiltered and without any aqueous modification. Fish have no marital or family ties—man has (frequently). Yet, it is safe to say, there are more fish than there are men. Finally, fish have gills—MAN prefers *pints*.

Thus, seriatim, I have absolutely and forever disproven the "Egg," "Nut" and "Fish" theories. MAN is none of these any more than he is a Bird or Near-Angel. He is nearer to the Penguin (whom he very much resembles when in his "Soup and Fish") and has about as much chance of sprouting wings. Really, he is a *composite conundrum*—closely allied in many respects to the Duck-billed Platypus (*ornithorlyncus paradoxus*) a most interesting Australian aquatic and egg-laying mammal—though he does not possess that animal's gentle and retiring disposition.

His real origin is shrouded in mystery and the only thing he can safely claim is that he is a *product of environment*. His pride of ancestry would, undoubtedly, vanish could he be introduced to his earlier progenitors. That he dropped his tail, is not so wonderful an accomplishment—consider, if you please, the humble tadpole. Neither should he brag too much because he managed to get up on his hind legs and stay there. The kangaroo can go him a jump better—and, moreover, the Lady of that species has conveniences which count when one considers that baby-buggies cost money and money means work of some kind—for somebody.

But, somewhere, somehow, in some way, MAN acquired the one thing which lifted him above the other animated inhabitant of this planet—a *thinking mind* (ordinary intelligence other living creatures have in abundance) and, with that, he acquired *dominion*—and a lot of other, less desirable things. *Thinking,* he also *dreamed,* and the things he visioned in fancy he set about to materialize. Sometimes he succeeded; sometimes he failed; but the desire to Succeed and the fear of Failure made him unscrupulous and, in his march upward, he forgot many of the primitive decencies of the lower orders from which he had sprung and learned to lie, cheat, steal and kill—not as a matter of self preservation, but to increase his possessions and importance in the eyes of his fellows. He who could get the most, was the biggest, tens of thousands of years ago even as now. *How* he acquired wives, food or possessions, was something only still bigger men might ask. Those he despoiled might groan, but they "gave up" just the same. As time passed, it became more and more necessary for the strong, who would remain strong, to exploit the weak, and they proceeded more or less actively to do what was necessary. The history of MAN is one long sordid story of Wrong and Oppression and, though, like Beacons, really Great and Just MEN have frequently appeared to beard tyrants and secure more or less justice for the great mass of their fellows, the world has been run by a comparatively few individuals for their own particular benefit.

For many generations, now, of course, we have boasted of our "advanced civilization"—the Greeks did that, the Romans, the Assyrians, the Egyptians, and countless other "enlightened" nations—but, is MAN, the "Composite Conundrum" of today, very far removed from the original edition? We talk of loving our fellow men—DO we? Do *you* love men in the mass? Have *you* any real idea of how the other half lives? Did *you* ever back yourself up against the wall and search your own heart as to whether you were so living as to make other human beings happier or better? Are you really not inclined to get what you or yours want regardless of *how* you get it? And, don't you find yourself spending the active years of life in serving *self?* Are we not as individuals and communities narrow, self-satisfied, smug and *bunk-blinded?*

Don't we lie rather readily, cheat without very much compunction, grab anything we want and *can* grab without danger and gen-

erally break our own moral code—if we find it convenient? Won't we, too, without much hesitation corrupt those we ourselves have "set in authority over us" if, through that authority, they become dangerous to our personal welfare? In other words, has MAN yet reached a point where, as an individual, he will honestly live the life he—for his own comfort and safety—directs that others shall live? I venture to say that he hasn't. I am quite sure that most of us find much more satisfaction in finding holes in other peoples' coats than we do in mending our own. I am also certain that, if we needed a coat, we would not hesitate to take the other fellows—one way or another; provided, of course, that we could "get away with it." That is what man has been doing since he made his *début*, "getting away with it." And, the more deft and delicate his getting-away process, the more certain is his social standing and the larger are his possessions! MAN is "civilized," perhaps; but he is not yet *humanized*. Until he really is *that*, he will be a conundrum to those that study him—and, unfortunately, to himself also. For, he is, after all, a *product of environment* and most of us *are* just what most of those around us *are*—or at least what the seemingly successful ones appear to be. We, today more than a century ago, rather laugh at the so-called "simple virtues." We have *faith*—that we shall "get there"; *hope*—that the other fellow won't "beat us to it," and *charity*—when it doesn't pinch *us* to extend it. We excuse our shortcomings and unfairness by saying "If I don't, someone else will"—and that is perfectly true. They would!

We "trail with the herd"—if the grass is good; "run with the pack" (for safety) but slip off from time to time to make our own killings. We are in short MAN, the *composite conundrum* of the Universe—claiming kinship with God and shaking hands with the Devil.

The one hope is that, having evoluted thus far, we may evolute some more—in the right direction!

[*Continued from page 674.*]

branches correspondingly more time is devoted in the medical colleges.—ED.]

A CHIROPRACTIC VIEW

I cannot agree with you on the proposition that there can be a dislocation or movement of the transverse process of a vertebra, without a corresponding movement of the body. They are one and (outside of fractures) inseparable. To move any part is, to move the complete vertebra. Had you written (June issue, page 441) that, in your own case, there had been displacement in the articulation between rib and vertebra, then, of course, no exception could be taken relative to your statement.

We have several medical men in our ranks, but, personally, I believe that no *good* medical doctor would ever give up his practice and join our ranks simply to be able to give adjustments. To me, it is a wonderful thing to be a capable surgeon, a good physician, and a good chiropractor; not all in one, of course, but each in his line. Chiropractic is a wonderful study. It is a shame that surgeons have not investigated our claims and discovered, for their own benefit as well as that of the world in general, just how far disease is influenced by pressure on nerves through displaced vertebræ. Do you realize that, given a certain list of diseased organs, upon examination of the spine you will find, nine times out of ten, a displacement of the vertebra that controls the nerve leading into that organ? Try it out on your next case. Examine closely and, if there is some irregularity, don't hastily explain that it is too slight to be given any consideration. Predisposition is a great word and carries more weight than in years past, and it is not a far-fetched idea that nerves weakened from pressure can create a condition of predisposition to disease. I think our chief difficulty in convincing the medical profession, that there is any merit in chiropractic, is due to the fact that most of them will not admit that vertebræ can be moved. This position, however, cannot be taken by anyone willing to investigate and to determine the truth. Any good chiropractor can demonstrate to you in very short order that it is a possibility and is being done every day in every office.

I hope that you will continue your investigation of chiropractic. Our school clinics are available to you. The work may seem crude to you, but the principle is there just the same.

As to chiropractors giving drugs, I don't believe it is done to any great extent. It is all too true that the chiropractor would be more fitted or capable in caring for those that come to him, if our schools gave us a better opportunity to become more capable in making a diagnosis. The opinion handed down by some schools is not the opinion of the field, by any means.

G. A. R.

Let's Talk it Over

Active-Principle Materia Medica

With Physiological Effects and Therapeutic Suggestions

By WM. T. THACKERAY, M. D., Fowlerton, Texas

[*Continued from August issue, page 598.*]

Picrotoxin

A neutral crystallizable principle, representing the activity of the Cocculus indicus (Fish Berries) from which it is obtained.

Physiological effects: It stimulates the secretions of the salivary and intestinal glands, also those of the pancreas and liver. Peristalsis is increased, so that the alvine dejections are not only more frequent, but more copious and less consistent, and this occurs without hyperemia of the mucous membrane. Picrotoxin has also a potent action on the sweat glands, whose secretions it increases.

The heart action is slowed, the arterial tension somewhat elevated, and the movements of respiration are lessened, to become accelerated under the influence of spasm. It is alleged to act upon the cerebellum, medulla and spinal cord, while it claimed also, to the contrary, that the action is on the medulla and that the cerebrum and cord are unaffected.

Picrotoxin is eliminated by the kidneys and by the skin. Strychnine and Pilocarpine are antagonistic to some extent.

Therapeutics: Indicated in constipation dependent upon deficient secretion and paresis of the muscular layer, in paralysis of the sphincters, chorea, epilepsy, paralysis agitans, and tremors of chronic alcoholism. Very useful in the sick headache that occurs about the menstrual period and in the night sweats of phthisis.

Pilocarpine Nitrate

Salt resulting from the chemical combination of Pilocarpine (alkaloid) with Nitric Acid; the Pilocarpine being one of the alkaloids of the Pilocarpus Pennatifolius (Jaborandi).

Physiological effects: From its stimulating effects upon the secretory nerves, it provokes an enormous secretion of saliva and sweat; this is preceded by flushing of the face, if taken into the stomach; if used hypodermically the sweat appears first at the point of insertion of the needle. These two secretions are not equally abundant; if one is very copious, the other is scanty. If the perspiration is not well established, the secretions of the nares, bronchi, lacrimal glands and kidneys are somewhat increased and, occasionally, there are watery alvine dejections. The action of the heart is increased, but the arterial tension is notably diminished; a fall in temperature (0.5 to 2° F.) ensues; and the sweating is maintained, on an average, about four and a half or five hours. A sensation of chill commonly accompanies the decline in temperature, and nausea is not infrequently experienced at the onset of the action of the salts of this alkaloid.

All these effects are, with corresponding doses, much less intense in children than in adults.

Pilocarpine and its salts stimulate the gravid uterus, as affirmed by many observers. Hence, it should not be pushed in pregnancy, lest miscarriage or premature birth be produced.

Applied to the eye, it produces myosis, tension of its accommodative apparatus with amblyopic impairment of vision from diminished sensibility of the retina. The visual field is approximated to the nearest and furthest points.

About an hour or an hour and a half after its local use, the eye resumes its normal state.

Therapeutics: Indicated in the incipient stages of mumps, when it may abort the disease. After its full development it may prevent metastasis. Cardiac dropsy, pleuritis, hydrothorax, ascitis, bronchitis and asthma with profuse expectoration are often much benefited by this agent.

Useful, also to augment the secretion of milk, and in diabetes insipidus, glycosuria, scaly eruptions, prurigo, pruritus senilis, coryza and tonsillitis. Alopecia is successfully treated by local applications of this alkaloid.

It has advantages in certain affections of the eye, as chronic iritis, keratitis, glaucoma, atrophic choroiditis, hemorrhages and exuda-

tions of the retina.

Dosage: 1/64 grain every half hour to facilitate the removal of watery effusions, ten to twenty doses daily as a diuretic in uremia and acute or chronic albuminuria; eight to ten doses a day, in connection with a mercurial in syphilis. In all other acute diseases, one dose every thirty minutes or every hour until effect.

It is contraindicated in all affections of the gastrointestinal mucous membrane and in weak heart, due to disease of its muscular substance, or its contained ganglia, or of the valves.

Piperine

Alkaloid from Piper Nigrum (Black Pepper).

Physiological effects: A warm, carminative substance, which on being ingested provokes a sense of heat in the stomach, increased frequency of the cardiac beats, reduction in the number of respirations and a wide dilatation of the pupil. The mucous secretion is increased.

Therapeutics: Useful in anorexia from gastric atony, in chronic or subacute gonorrhea, and also in gastrointestinal irritation.

Dosage: 1/16 grain three to five times daily.

Podophyllin

Resin from the rhizoma and rootlets of Podophyllum Peltatum (May-apple, or Mandrake).

Physiological effects: Acts as a purgative, increasing the secretions of the intestinal mucous membrane, also of the liver. Whether administered subcutaneously or by the stomach, it acts on the bowels. Topically, it acts as an irritant.

Therapeutics: Useful in the congestion of the liver and of the portal circulation in ague, and in sick headache with biliousness. Also useful in habitual constipation due to torpor of the muscular layer of the bowel.

Dosage: 1/6 grain: one to three tablets at bedtime followed in the morning by a saline; or one or three tablets before each meal until effect.

Podophyllotoxin

The active constituent of Podophyllin.

Physiological effects and *therapeutics* same as Podophyllin.

Dosage: 1/12 grain every half hour for from two to six doses, as needed at night followed by a saline the next morning.

Potassium Arsenate

Physiological effects: Alterative and reconstructive.

Therapeutics: Indicated in anemia, leukemia and various dermatoses.

Dosages 1/64 grain, two, three or four times daily after meals. Use cautiously to effect.

Potassium Cyanide

Sedative; indicated in spasmodic, irritable coughs, which it relieves admirably. Respiratory irritation with hoarseness, harsh or croupal cough.

Dosage: 1/64 grain every three or four hours to effect. Use cautiously.

Potassium Dichromate

Physiological action: Alterative to mucous membrane, particularly of the upper respiratory tract. Relaxant, expectorant and mildly antiseptic.

Therapeutics: In hoarseness due to singing or speaking, and in pharyngitis, it is an effective remedy. In croup or capillary bronchitis, it should be pushed to effect. It is particularly useful, in combination with Aconitine, in sudden attacks of tonsillitis.

Dosage: 1/64 grain dissolved on the tongue to relieve the hoarseness due to singing or speaking. 1/64 grain in combination with 1/800 grain Aconitine, in acute tonsillitis, every half hour to effect.

Potassium Permanganate

Physiological action: When brought in contact with any albuminous tissue, permanganate of potassium instantly loses a part of its oxygen. This renders it destructive to the protoplasm with which it comes in contact. The certainty of its decomposition, the moment it touches the walls of the stomach, has led many to deny the reports of its effect in anemic amenorrhea. Nevertheless, there is abundant evidence as to its efficacy in this malady. No other preparation of manganese has won repute in this disease; but we have not been able to find any evidence that any other salt of this metal has been sufficiently tried. (Waugh and Abbott.)

Therapeutics: Used with more or less benefit in diabetes mellitus, diphtheria, scarlet fever and other essential fevers, on the theory of its oxidizing powers. It is essentially the remedy in anemic amenorrhea. The patient should take iron arsenate during the intermenstrual period and, four days before the expected flow, take ¼-grain doses of the permanganate every two to four hours, continuing until the discharge appears or the time is past. (Waugh.)

Dosage: ¼ grain *pro re nata*.

Quassine (Crystals)

A bitter principle, neutral, obtained from

the wood of Quassia Excelsa.

Physiological effects: Bitter stomachic tonic, devoid of astringency. Promotes appetite and digestion and, to a certain degree, increases the intestinal glandular secretions.

Therapeutics: Useful in dyspepsia (atonic), anorexia and other stomach affections due to relaxation. In convalescence after fevers and debilitating diseases, administered conjointly with dilute mineral acids or granules of Phosphoric Acid it is of valuable assistance. It has been found peculiarly adapted to the dyspepsia of drunkards. Quassine administered in connection with Hyoscyamine and Morphine corrects the narcotic effects of these alkaloids.

Dosage: 1/64 grain *pro re nata.*

Quinine Arsenate

The salt of an alkaloid obtained from the bark of various species of cinchona. Contains practically 70 percent of quinine and 15 percent arsenic acid.

Physiological effects: In small doses, its action is analogous to that of quinine sulphate, but, in large doses, besides the effects common to the other salts of the same alkaloid, others of a more toxic character are shown which emanate from the presence of the arsenic acid.

Therapeutics: As both elements of this salt are synergists in their antiperiodic action, it follows that it is indicated in all diseases manifested by periodic paroxysms, either pyretic or apyretic, malarial or otherwise. It is also useful in affections of the liver and spleen depending upon malaria.

Dosage: 1/6 grain every half hour during the remission of fevers of a malarial character and periodical neuralgia; ten to twenty doses per day as a prophylactic against malarial fevers, and 1/6 grain every two hours in skin diseases with evening exacerbations.

Quinine Ferrocyanide

This salt, constituted by the elements, Iron, Hydrocyanic Acid and Quinine, partakes of the sedative and antispasmodic action of the acid and of the hematinic and antiperiodic action of the iron and quinine.

Therapeutics: In the apyrexias of malarial fevers, this salt of quinine stands unequalled for its beneficent effects. Indicated in paroxysmal neuralgia, in connection with aconitine; in whooping cough in connection with codeine.

Dosage: 1/64 to 1/6 grain, the smaller dosage and up to the larger dose several times daily *pro re nata* to effect.

Quinine Salicylate

This salt aggregates the properties of both the acid and the alkaloid, both as an antiseptic and an antiperiodic.

Physiological effects: In small doses, it energizes the functions of digestion and assimilation, like all bitter tonics; if these are frequently repeated, it produces cinchonism, slows the cardiac action, depresses the respiratory function and lowers the temperature.

In large doses, its action is more irritant and toxic than the other salts of quinine, the arsenate excepted.

It is indicated in rheumatism with periodical paroxysms, in atonic dyspepsia, and in infectious diseases.

Dosage: 1/6 grain twelve to sixteen a day in inflammatory rheumatism, typhoid fever and in miasmatic and zymotic diseases.

Quinine Valerate

Physiological effects: By means of the Valerianic acid it acts as a sedative of the nervous system; at the same time, the quinine exercises its properties against periodicity and malaria.

Therapeutics: Indicated in periodical manifestations of spasm, pain, or fever, chiefly when there is irritability of the nervous system.

Dosage: 1/6 grain *pro re nata.*

Saccharin (Soluble) (Sodium Saccharin)
(Abbott)

This salt is equal to 400 times its weight of sugar, 1/6 grain being equal to the average lump of sugar.

Saccharin being devoid of all fermentative properties, it should be always used in sweetening the drink or medicine of those suffering from serious enteric disorders of whatever nature, or from diabetes and especially of those inclined to superfluous fat.

It may also be used for sweetening where the use of sugar is liable to produce digestive disturbance or is objectionable from any cause. (Waugh and Abbott.)

Sanguinarine Nitrate

Salt of the alkaloid obtained from the root of Sanguinaria canadensis (blood root).

Physiological effects: Tonic, aphrodisiac and cardiac stimulant in small doses. Large doses sedate the heart. Exerts a selective influence upon all mucous surfaces and is useful, therefore, in bronchitis, laryngitis, dryness of the throat.

Therapeutics: Is of service in catarrh with little or no discharge, and in atonic conditions of the gastric and respiratory mucosa generally.

In some cases of amenorrhea, likewise in sexual frigidity, especially in the female, or where, in either sex, the circulation is feeble and the extremities cold, administration of the

drug proves of value.

Dosage: 1/64 grain as a stimulating expectorant every half hour to effect, continued at longer intervals *pro re nata*.

As a tonic and cardiac stimulant, 1/32 to 1/12 grain three or four times daily as required.

In sexual frigidity, 1/6 grain every three or four hours, the last dose at bedtime. May be combined, especially in the female, with Anemonin or Neuro-Lecithin. (Waugh.)

Santonin

A crystalline neutral principle from the unexpanded flower-heads of Artemisia Marituria (worm seed).

Physiological effects: In small doses, it produces no perceptible physiological disturbance. However, if these small doses are frequently repeated, there is a peculiar derangement of vision, so that at first everything appears bluish and afterwards yellowish or greenish-yellow; the bluish is but transient, the yellowish more lasting. The quantity of urine is augmented and the desire to urinate more frequent; sometimes, in children, it may give rise to incontinence of urine. Santonin is eliminated as a sodium salt in the urine and colors it yellow; if the urine is rendered alkaline, it becomes blood red.

These colors are probably the product of oxidation of Santonin and the transient blue color in the vision is usually regarded as due to stimulation and subsequent paralysis of those fibers of the retina by which blue light is perceived.

In large doses, it causes headache, giddiness, vomiting and sometimes death by convulsions, with a tendency to paralysis of the respirations between convulsions. Hence, in a case of Santonin poisoning, it is necessary to use chloroform inhalations to lessen the convulsions, and to maintain artificial respiration.

Therapeutics: Indicated in ascarides lumbricoides (round worms), ascarides vermicularis (thread worms), iritis, iridochoroiditis and choroiditis with plastic exudation. Also in some forms of amenorrhea and in epilepsy from intestinal irritation.

Dosage: 1/6 grain to 1/2 grain at bed time, one or two nights in succession, followed by 1/2 grain of calomel or a tablespoonful of castor oil, in intestinal parasites; 1/6 grain every two hours until effect, in affection of the eye; and from eighteen to twenty-four doses daily in amenorrhea.

Scillitine

Acrid bitter alkaloid from the bulk of Scilla Marituria (squill).

Physiological effects: In small doses, augments the bronchopulmonary secretions and likewise the renal secretions. In large doses, acts as an irritant emetic or emetocathartic, producing considerable prostration.

Therapeutics: Useful in bronchitis or bronchopulmonary affections with scanty expectoration, or with difficult, glutinous sputum. Also in dropsical effusions due to cardiac affections.

Dosage: 1/64 grain every hour or two as an expectorant and 1/32 grain every three or four hours as a diuretic.

Silver Iodide

This salt is advocated by many competent clinicians as an effective remedy in pertussis. Curative results have been secured within ten days by the use of 1/6 grain, three or four times daily. Calcium Sulphide is an essential alternate in the earlier stages. (Abbott)

Silver Oxide

Physiological effects: Tonic, alterative, antiseptic, irritant in full doses.

Therapeutics: Indicated in gastralgia, gastric catarrh, gastric ulcer, chlorosis, chorea, dysentery, and some forms of epilepsy.

Dosage: 1/12 to 1/6 grain, as indicated, before each meal. Effect should be carefully observed, to avoid overdosage. (Abbott).

Sodium Arsenate

Chemical union of Sodium and Arsenous Acid.

Physiological action: Alterative, tonic, antiseptic and antiperiodic.

Therapeutics: Indicated in malaria, anemia, chorea, general debility, and nervous diseases.

Dosage: 1/64 grain to 1/16 grain, three times daily. Larger doses may be given every two hours in malaria and in severe forms of anemia, to effect.

[*To be continued.*]

DR. BRYCE'S TALKS

About Consultations

In the course of our professional work, we meet conditions demanding consultations with our medical colleagues over obscure or difficult cases, and, as these meetings of medical men involve so many delicate possibilities and have been causative of some serious differences between formerly good friends, I will mention a few cautions that might be observed in regard to all consultations between physicians, regardless of friendship or other considerations.

In the interests of the younger members of our profession, I am going to say at the

start that there is no way by which a medical man can so surely break himself up with a family than by asking for or accepting a consultation with the wrong kind of a doctor!

When you call a doctor to consult with you, you let him enter your fortress and show him your hand. He knows your diagnosis, your line of treatment and its unsatisfactory results —all before he has committed himself in any manner. If he is an honest, ethical gentleman, he will tell *you* privately just what he thinks and will suggest any measures that he may believe advisable; and he will tell the patient or his family, *in your presence,* that he fully approves of your conduct of the case. It makes no difference how much you have blundered, he is there to protect you and to help you to cure your patient. If he is a crook, he will pretend to you to endorse your course, but he will by some underhand methods let the patient or family understand that "it was lucky that *he* was called in time."

It has been my misfortune to have had several unpleasant consultations in the course of a long practice, and I am serious in my advice on this subject to those who may yet have some things to learn. There is a vast difference between a consultation asked for by the attending physician for his own satisfaction in treating a doubtful case, and one thrown upon him by patient, family or (more often) through outside influences.

One thing a physician should always bear in mind when a consultation is asked for by patient or family: It is, that there exists a doubt as to the correctness of his diagnosis and treatment, a lessening of faith in his ability to safely conduct that case further. Just here is where I have always somewhat resented the suggestion when coming from the family, although we should make allowances for natural anxiety and decide the question from our own viewpoint. If we accept a consultation, which we certainly should in very grave cases, it remains for us to be satisfied with the physician with whom we are asked to consult. As a rule, where the family has the proper regard for your feelings, they will always leave the selection of the consultant to you, and in this case you have no cause for objecting. It will be in good taste to name some physician of your choice and ask if he will be entirely satisfactory to them.

But, it is entirely different when a consultation is requested by the family and they name the physician whom they desire you to meet. This is little short of a request for you to retire from the case, and it is a situation that I have always promptly met by immediately withdrawing.

As it is pretty safe to judge others by one's self, I may better outline my ideas of certain things to be guarded against in consultations by giving a few experiences of my own:

Thirty-five years ago, I was in attendance upon a poor girl who had reached her third week of typhoid fever and was just at the critical turning point. She was prostrated, tympanitic, flagging and failing; but had a chance. She could be aroused from her stupor and would take her eggnog, milk or broth and sleep on. Her temperature was giving way a little and her parched and cracked tongue was becoming a little moist. She was on dangerous ground but had a fighting chance. At this stage, a meddling relative persuaded the family to have consultation. They named a physician and asked that he be called and meet me in the case. He was a fine specimen of the "old school," with a good opinion of his ability, and had certain ideas of his own, one of which was, that there was no such thing as typhoid fever, all cases called thus being continued fevers due to defective action of the liver, with malarial poisoning. Our meeting was pleasant and, when we had examined the poor girl and retired for consultation, he said: "Doctor, you are all wrong; that is a case of bilious remittent, and she will die unless you rouse that liver. I would give her 5 grains of calomel every two hours until she has taken 20 grains."

That was about 3 o'clock in the afternoon, and I told him I could not endorse such recommendation, as I felt sure it would kill her; but I would state my objections and let the family decide, which he knew would be in his favor. I told them in his presence that we differed to such an extent that we could not cooperate in the case, and that only one of us could attend her. They promptly decided that they desired the consultant to carry out his views. The old physician was an ethical gentleman and promptly declined to take the case unless I remained in attendance. I was in an embarrassing position, for my withdrawal from the case would have prevented them from obtaining the services of a physician they had faith in and wanted. So I said to the doctor in the presence of the family: "Tell them exactly what I have told you, and I will remain with you as long as she lives, but only as an observer." He told them, like the square man he was, that I had said I believed the plan he proposed would kill the patient as surely as if he were to shoot her

dead with a shotgun, but he believed it was the only chance to save her life, and "I will stand between you and God Almighty if she dies, doctor!" So she swallowed her first 5 grains of calomel and was due to take the 20 grains by 9 o'clock that night. We parted with the understanding that we see her by 11 next day. When we arrived at the house next day, we found the blinds closed and the black signal tied to the door knob.

That consultation could have been better arranged by simply following the Code of Ethics literally; for, when we disagreed, a third physician should have been called and the dissenting one should have withdrawn. As it was, the poor girl died and neither one of us had the satisfaction of being endorsed by the other, while the distressed family were in doubt whether they had been right or wrong in their decision.

I recall another consultation conducted strictly along the established ethical lines and with more pleasant results: When I was quite a young practitioner, there lived in this city a prominent, well-established physician who was slightly related to me, but who practised in an entirely different class—his clients were rich and aristocratic; mine were at that time mostly "po' white trash and niggers"; so that we seldom met in practice. Sometimes, I called him in to see patients with me when I was in trouble, but he *could not* call me into his cases without embarrassment. However, he was clannish and threw all he could in my hands. So, I was not surprised, one morning, when I received a note asking me to meet him in consultation at 10 o'clock at a fashionable and wealthy home in upper Franklin street. He was a strict observer of the Code of Ethics, especially in consultations, insisting on every formality required. All met promptly at the hour designated, and I noticed that I was the *fifth* doctor in the bunch. It seemed that the first physician called in failed to agree with the attending doctor, and they called a third one who disagreed with both, so that, on this morning, two more were called; and I was the fifth man and by long odds the youngest of them all.

The old attending doctor was a great stickler for exact formalities, and conducted this meeting according to Hoyle. He met us exactly on the hour, conducted us into the parlor and explained that he had been requested to call consultation; that he had allowed the family to name the doctor and that they disagreed; that he requested the family to name a second consultant, and they, all three, disagreed, and they had suggested that *he* call two more of his own selection in the hope that somebody might be able to get together and conduct the case. He refrained from giving us the history of the case so as not to bias us. He led us into the sick man's room and gave him a cursory examination, then asked Dr. A. to examine him; then he called upon Dr. B. to do so, and then Dr. C. Finally, as each physician made his examination and stood aside he called upon me to "look him over Dr. Bryce and tell us what to do."

The patient was a young man, probably twenty-one or twenty-two, apparently, and had been in bed several weeks with a half diarrhea, no appetite, some little temperature and great loss of strength and flesh. He had headache and wandering pains in his abdomen. When we all retired for the summing up, it reminded me of polling the jury, as the old doctor put the question to each in the order of our entry in the case.

"What is it, Dr. A?"

"I stick to my diagnosis of yesterday," said he. "It is tabes mesenterica."

"How about it, Dr. B?"

"Dam fi no," said he.

"Well, Dr. C., what do you think?"

"Looks like a mongrel typhoid fever," said Dr. C.

I was the last man to express an opinion, and I noticed that they all had a rather amused smile on their faces as the attending physician said, "Well, Doctor Bryce?"

By a strange coincidence, their patient was really *my* patient, or had recently been under my attention, and here is the story I gave them: "Three or four weeks ago, this young man came to me for treatment. I told him to go home and take to his bed, to keep his bowels open with epsom salts, to eat light and unstimulating foods, to keep himself sexually cool on bromide of potassium, and to take a good dose of a nauseous balsam copaiva emulsion three times a day; to stay in bed and send for the old family doctor and tell him he was out of sorts; to secretly take my medicine and throw away what the old doctor prescribed and he would get well in the shortest time."

"Under this line of treatment, I am not surprised at his present symptoms. Now, gentlemen, can we agree upon a diagnosis?" They responded in chorus that we all agreed in diagnosis and treatment! The attending physician said: "Well, there is safety in a multitude of counsellors, even if one of them is a clap doctor."

Consulting With a Crook

This is an example of consulting with the wrong kind of a physician in an effort to hold a case, which is always a mistake. Long years ago, there practiced in this city a young friend of mine, a competent and ethical man, very small of stature, red headed and quick tempered, but withal a splendid fellow. He was attending a very well-to-do patient who was not responding to his remedies as satisfactorily as the family thought he should, and they asked him to call in a consultant whom they named and who was not at all to the liking of my friend. He came to see me and told me:

"Those durn people are going to force a consultation on me, and I have no use for the fellow they wish me to meet."

"Well, why not refuse to meet him?" I asked.

"Because, if I decline to meet him, they will discharge me."

"If that is the state of affairs, you will be finally kicked out of the case anyway," I told him.

Still, he met him and, of course, the consultant flatly disagreed with the attending physician and they both retired from the case, giving the family the opportunity of calling in some other physician. This procedure was entirely ethical and proper as far as it went. But, next day, the consultant was called to take charge of the case, and he *just kept on with it until something happened,* which wasn't long, after our friend found out what was going on.

The doctor who did this unscrupulous thing was a big burly fellow, with the reputation of being a "scrapper" on slight provocation, and he usually resorted to the expedient, for getting out of his dirty work, of raising a row and bullying more modest men into letting the matter drop. However, dear "little Jimmie D.", as he was affectionately called, was not made of the back-down stuff, and I knew that there was going to be a meeting of these two doctors, not exactly according to the medical code.

It was only a few days before these two doctors met, and the meeting was short, sharp and decisive. Unfortunately and accidentally, I was a witness of what took place; for, one afternoon, as I turned into a cross street, I saw my friend and the mongrel doctor who had behaved so badly approaching each other. I was too far off to prevent the collision that I knew was imminent. As they met, I noticed the big man extend his hand. Dear "little Jim" stepped back and said something I could not hear, but I heard the big man say: "You are a liar." Then I saw Jim whirl his cane, heard a whack, and the big fellow spun around three or four times like a partridge shot in the head, and, finally, fell up against a house side, gradually crumpled down upon the pavement and rested quietly. I ran up and told Jim that I hoped he had not killed him.

"Where did you hit him, Jim?" I asked.

"I tapped him on the forehead," he said.

The man was bleeding freely from nose and mouth and I told Jim to go home and I would look after the man and report. I washed his face and called a carriage and sent him home.

Just before leaving me, he said: "I haven't any hard feelings towards that little doctor friend of yours; I don't intend to have him arrested nor to see any more patients of his, either in consultation or otherwise. But, when you see him, ask him what in hell it was that he hit me with."

It is funny how things happen in this world. I lived to see both of these men reconciled and good friends and they exchanged courtesies in consultations afterwards. They both have passed over the river long ago and, I hope, are where all good doctors go.

Long since, I made it a rule for myself to consult with no man I did not like, nor with any man selected by the family as my consultant, unless he was a personal friend. I always retire from a case when the family request me to call a particular doctor in consultation. I never enter into consultation concerning the patient, in the presence of any one except the doctor or doctors who have seen the case. I never ask any consultant, however friendly he may be, to call in and see the patient, any time, in passing. I make it a rule never to become the family physician of any family with whom I may become acquainted through a consultation. I consider consultations in many instances hazardous alike for patient and attending physician!!

C. A. Bryce.

516 N. Tenth St.,
Richmond, Va.

IMMORTALITY

I was profoundly impressed by the article, in the June (p. 434) issue of Clinical Medicine, detailing views on a life hereafter and presenting a letter on the subject from the eminent Dr. W. W. Keen, of Philadelphia. It is indeed a moving spectacle, the humility

of this great man in the presence of American mothers who had lost sons in the Great War, and his earnest desire to speak words that might console and comfort the hearts rent by sorrow. I think that there is no more reliable criterion by which one may judge true greatness than this same spirit of humility that is so beautifully shown in the letter referred to.

The subject "Immortality" is one of supreme interest; I think more so, or at least over a broader expanse of the earth's surface, since the World War. The world is demanding proof of immortality as never before.

Unfortunately, our philosophy on this point is all *a secundo,* our logic all deductive. Yet, to the thinking mind, it can be in no way less satisfactory proof because of that.

All nature proves it, the inorganic and the organic worlds attest it. In chemistry, we have the law of "the indestructibility of the atom." The atom is immortal. Burn a piece of wood, smoke and other gases pass out and ashes remain. Yet, is the wood destroyed? No, the atoms which composed it are now disseminated and for the most part invisible but could, under proper conditions of pressure, be reassembled and the same piece of wood would exist again visible to the eye, exactly as before.

We have the moving story of a servant of the ancient king who, having accidentally dropped the royal goblet of silver into a vessel containing acid, wept inconsolably as it slowly disappeared from his view. The wise man inquired into the cause of his grief and, on being told, he assured the servant that the coveted goblet could be recovered by the action of chemicals and rendered far more beautiful even to the eye than before; nothing had been lost, or destroyed, every atom was there; bright and sparkling, if only, by the deft manipulation of the forces of nature, the individual atoms formerly composing the goblet were again assembled.

Yet, you say, the atom is subject of theory. So, the belief in the soul of man is based on theory.

No one has yet seen an atom; no one has yet seen a soul. As already stated, we are on purely theoretical grounds; but does that fact make us less certain of the truth of our logic? It does not. Nothing then can be lost or destroyed in nature. The atom is immortal. The most valuable of the chemical components of this earth is the atom. The most valuable part of the plant is the atom; the most valuable chemical component part of the animal body is the atom, and this same atom, whether a chemical component part of organic or inorganic substance, is eternal—immortal—and can never be destroyed. But, as the plant, composed of chemical atoms, exceeds in importance in the earth's economy the inorganic mass, also composed of chemical atoms, so the animal body composed, as it is of these same chemical atoms, exceeds in the scale of the cosmic importance the merely plant world. And as we go higher and calculate the relative importance of the different species composing the animal world, we must come at last inevitably to man, the most important of all the creations on this mundane sphere. And, yet, man's body is an animal body composed, like the other divisions of this earth's cosmic forces, of the agglomeration of simple chemical atoms.

Then, why is he of supreme importance, why of greater importance than the rest of the animal world or the plant world? Not because he possesses life, for they possess life in varying degrees. It is because he possesses the power of control of his life; of which his power to laugh, to think, to talk and to pray are examples; and, in this connection, it is to me a thought fraught with the most profound significance that almost contemporaneously with his power to think and talk appears his desire to pray! Man has been called the praying animal! Stimulated by what force is within him, then, does man pray? for, we have no evidence that any other animal prays. Is it not because of the possession of a soul? Certainly, it is because of the possession of some one thing, or force, that the animal world and the plant world and the chemical world do not possess.

We are per force driven to the assumption that the most valuable part of man is not his body, is not his life, but that invisible and theoretical, that vital analog of the chemical atom —the soul.

Then, since we know that the atom—that most valuable element in the chemical cosmos of the world, organic and inorganic—is immortal and cannot now or ever be destroyed, would it be a sane conclusion on the part of any logical-minded man to reason or to believe that the soul, the most valuable part of man, who in turn is the most valuable part of all the cosmic elements on this mundane sphere, that the soul, I say, should then be the only thing to be utterly and absolutely destroyed from off the earth with no possibility of ever being restored? An answer is hardly necessary. I think that the reasoning mind of any who may have followed me thus far, will at once render a firm negative. The argument for the soul stands and with it stands the argu-

ment for immortality.

I am delighted, Doctor, to have had this opportunity to convey to you my thoughts on this all-important subject, and if I have not drawn them out at such length as to impose upon your time, I shall be further greatly pleased.

J. A. DUNGAN.

Greeley, Colo.

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[We doctors do not often think "out loud" on this much discussed subject. We are supposed to hold the position that we can not accept the existence of something which we can not demonstrate under the microscope, with the scalpel, or by means of chemical reactions. Yet, we, personally, believe that there are few physicians who actually are materialists in that restrictive sense. We see too much of the human mind and spirit to deny their existence outright. Even as scientists, there are too many things passing beyond our ability to explain, that we could afford a categorical "That is not possible" with regard to the question discussed so ably by our correspondent.

Nor can it be said with justice that such a discussion does not properly belong in a medical journal. Physicians are human, with all human attributes, feelings, sensations, ideas. Surely, coming in close "soul-contact," as it were, with so many sick people, sick minds, sick *souls*, it is proper and even necessary for us to take position on this question.—ED.]

A GOOD OPENING

There is a good opening for a doctor here. A large country practice in the best section of the "Inland Empire." Dr. Stoneburner, one of your readers, had a large practice until he died. A good man would have no competition. We hope you can send us one.

A. H. SMITH & SONS.

Leland, Idaho.

ELECTRO-PHYSIO-THERAPEUTIC CONVENTION

The American Association for Medico-Physical Research will hold its Convention, September 27, 28, 29, Thursday, Friday and Saturday, at the Sherman Hotel, Chicago, Ill.

This Association is composed wholly of medical men. Each year, a different subject is dominant. It, however, seeks to foster, develop and standardize physical methods in diagnosis and treatment among medical men.

This year is to be devoted to the presentation of the popular methods of Physio-Electro methods of treatment. This is peculiarly fitting, for we claim that this society first popularized and then furnished many of the men and methods so successfully used in reclamation work among the soldiers during the World War.

The program, this year, includes men of national import and members of the society, who are authorities in their lines. Among the subjects are, Advanced Diathermy methods, Electrocoagulation of Cancer Growths, Tonsils, etc., Rœntgen, Thermo, Chrome, Minim, Radiant Activities Vibration, Tension, Concussion, Mechanotherapy of Spine. Few men have attended our meeting who have not returned home with many new, health-restoring, money-making methods as their reward.

We present a short course on the laws of healing forces, by a master who understands the real basis, of socalled mental healing. This will alone be worth many dollars, and will offer a scientific basis for future work.

The electronic theory and practice has awakened a furore among medical men and the laity, both pro and contra. The society, this year, will present an exhibit of ten machines from different firms, utilizing the new Radio Wave and Electronic currents in the treatment and diagnosis of disease.

In addition, a section has been given over to the frank discussion, both pro and contra, from men who have been experimenting and treating with this modality.

This society neither endorses nor condemns, but feels its importance enough to present a platform of free discussion and research.

We invite all medical men of good standing to attend and affiliate. We anticipate an overflow attendance and advise early registration. Programs on request.

EDWIN S. ANTISDALE, M. D., Sec'y,
Marshall Field Annex,
Chicago, Illinois.

S. EDGAR BOND, M. D., Pres.,
Richmond, Indiana.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following open competitive examination:

Junior Medical Officer

Applications will be received until December 28. The examination is to fill vacancies in the Indian Service at entrance salaries ranging from $1,000 to $1,200 a year, plus the increase

of $20 a month granted by Congress, and quarters, heat, and light; in the Coast and Geodetic Survey, at an entrance salary of $1,020 a year, plus the increase of $20 a month, and an allowance of $1 a day for subsistence while serving on board ship, except in the Philippines, where the allowance is $2.50 a day; and, in the Panama Canal Service, at an entrance salary of $250 a month.

Applicants must have been graduated from a medical school of recognized standing; or be senior students in such institution and furnish proof of graduation within six months from the date of making oath to the application.

Competitors will not be required to report for examination, but will be rated on their education, training, and experience.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil-service examiners at the postoffice or custom house in any city.

The United States Civil Service Commission announces the following open competitive examination:

Graduate Nurse

Graduate Nurse (Follow Up)

Applications will be received until December 28. The examinations are to fill vacancies in the Veterans' Bureau and in the Indian and Public Health Services. The salaries in the Veterans' Bureau range from $1,680 to $2,500 a year; in the Public Health Service, from $720 to $1,344 a year, plus the increase of $20 a month granted by Congress, and furnished quarters, subsistence and laundry. The entrance salary in the Indian Service is $840 a year, plus the increase of $20 a month, and furnished quarters, heat and light and laundry of uniform.

Applicants must have graduated from a recognized school of nursing requiring a residence of at least two years in a hospital having a daily average of thirty patients or more, giving a thorough practical and theoretical training, and must have had certain other specified training and experience.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience, on a scale of 100.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil service examiners at the post office or customhouse in any city.

CHLORAZENE IRRIGATION IN EMPYEMA

Just come from my fourth case of pleurisy with purulent effusion. This case is 24 hours old since drainage and, like the others, had an odor in the discharge that was awful.

The first case, and all the cases I remember in the school and hospital, were allowed to drain into dressings and permeate the surrounding atmosphere with a foul odor that was in itself enough to kill the patient and make the attendants ill.

In my first case, the old surgeon emphatically "sat-on" my proposition to improve matters, and for four days I allowed the patient to do as I was told. But, as I could see only death ahead for him, I put my plan of treating a cavity infection into action. Probably others have used this and written about it. If so, W. P. B. with this. [W. P. B. or the tiger, is fed only useless stuff. This is good! —Ed.]

With a short section of glass tubing, I connected a sterile rubber tube of the same size to the drainage tube and immersed the distal end of the attached tube in a two-quart jar of 0.5-percent Chlorazene warmed to 100° F. Now, allow the temperature of the jar's contents to recede to room temperature. Have two jars, one always prepared, and change as often as indicated, keeping the bottom of jar in use below the level of the patient's back. The first time, push the tube *quickly* to the bottom and, in a few moments, add enough fluid to replace what the cavity has taken, then withdraw the tube to within three or four inches of the top of the fluid.

The fluid will soon take care of the temperature; but do not waste effort looking for sub-normal temperature on that account. Keep the bowels open, three times daily, with suitable vegetable laxative, unless the tongue is foul or yellow. Then, use calomel and podophyllin. Prescribe Calcium Sulphide, gr. 1, and Intestinal Antiseptics, of each fifty. Sig.: One tablet hourly when awake, with water, alternating colors.

Forget to worry about that patient.

"Country."

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["Country's" surmise is correct: Others have used and written about chlorazene solution for irrigation of the pleural cavity, in

empyema. That is no reason, though, for scrapping his paper. The suggestion is a good one, and good things always bear repetition.—ED.]

TREATMENT OF FRONTAL SINUSITIS

There is probably no class of diseases so hard to get rid of as are the chronic infections of the nasal sinuses. Formerly, our only resource was surgery, and results from this method have been none too satisfactory.

With the recent perfection of technic and a better understanding of the action of the various electrical currents, we have a weapon which promises something of real value for these cases.

Sinus disease has been repeatedly demonstrated as an important cause of various other disturbances (points of focal infection), and steps should be taken to clear it up wherever possible.

The D'Arsonval Diathermic Current (low voltage, high amperage, high-frequency current) is indicated in the chronic stages, not in the acute. However, on account of the increase in circulation, i. e., the reaction produced, aggravations are liable to occur if we are not dead-sure of good free drainage.

Employing the vasoconstrictive action of the positive pole of the galvanic current plus adrenalin cataphoresis, we may open up the ducts and thus obtain good drainage. If we will now give the diathermy and follow it immediately with the surging sinusoidal, to massage and help remove the decomposition products, we obtain remarkable results in even the severest forms of the disease.

There is just one real diagnostic sign of frontal involvement and, if that is not present, you may be pretty sure that your patient is fairly free from trouble in this region. It is extreme sensitiveness to pressure with the finger on the thin floor of the sinus above the eyeball. The x-ray is also of distinct value.

Treatment:—We must first shrink the infundibulum, open up the frontal duct and institute drainage. Take an ordinary nasal probe and cover it with cotton to about the thickness of a match. Soak it in a 1:1000 solution of adrenalin and shake off the excess. By means of a Morse Clip, connect it to the positive pole of the galvanic current and insert it well up into the nose, as near the infundibulum as possible. This can best be done by passing the probe without a speculum. Insert it in the nose and then depress the handle, working it gently up toward the inner angle of the eye. When you get high enough, there is a tendency to bring on an attack of sneezing, which soon leaves. Connect the negative pole of the galvanic to a small pad well soaked in water and covered with a good lather of soap, placed on the cheek or forehead close by and held in position with rubber bands.

Give 2 or 3 milliamperes for three minutes, turn off the current slowly and remove the probe. Have the patient take a deep breath and close the nostril of the unaffected side. Then direct him to blow through the nose long and hard. The rapid rush of air produces a vacuum in the upper nose, which sucks the mucopurulent discharge from the sinus. It is well for the patient to hold a towel in front of the nose to catch the discharge.

In the acute frontal sinus, where the duct is completely obstructed and the patient is suffering the agonizing pain characteristic of accumulation of pus, etc., in a bony cavity, this method will give instant relief. Repeat it as often as necessary until the acute symptoms have subsided.

Having instituted drainage, our next step is the application of the diathermy. When applying the D'Arsonval current for eye, ear, nose and throat diseases, on account of the delicate structure of these organs, we cannot follow the regular rules of dosage but must depend entirely upon the sensations of the patient, never going above the point of comfort.

The smallest, or active, electrode must be put in the nose to obtain the best results. The indifferent, or larger electrode must be placed on the forehead in such a position as to draw the current through the sinus.

For the nasal electrode, the metal terminal of any ordinary conducting cord is as good as any. Cover it with cotton soaked in boric acid solution, of proper size to fit snugly in the nose. Be sure that there is plenty of cotton over the end of the terminal.

Insert it in the nose and hold in place with rubber band or a string tied around the head. Connect the other end of the cord to one of the binding post of the D'Arsonval coil.

Next, cut a block-tin electrode, 2 inches long and 1½ inches wide. Connect it to a conducting cord attached to the other binding post of the coil and place the electrode on the forehead over and a little above the sinus. Be sure that good contact is made, and bind it in position with rubber bands or bandage.

Now turn the current on very mild, and gradually increase it up to the point of com-

fortable tolerance. Treat for seven minutes, the first three or four times, and, if no signs of aggravation are produced, gradually increase to ten and fifteen minutes.

At the end of the diathermy treatment, remove the cords from the high-frequency apparatus, connect them to the surging sinusoidal and deliver a comfortably strong current for three minutes (no longer) through the same electrodes.

Give the treatment, every day, if possible, until definite improvement is established, then gradually wean off. Do not discharge the patient until you are sure the results are permanent.

Give these patients internally, 1/1000 grain of potassium bichromate. This remedy you will find of distinct value in all cases of chronic catarrh of the sinuses.

MEL R. WAGGONER.

Cedar Rapids, Iowa.

HYOSCYAMINE, THE ANTI-SPASMODIC

Last Saturday evening, I was enjoying a game of cribbage with a friend, when, suddenly, about half past ten o'clock, a woman screamed, Dr. Thackeray! Dr. Thackeray! outside my residence on the street, alarming me as to the possible cause, and, in a moment, a hysterical mother followed by a much agitated grandmother with a crying babe in her arms entered my sanctum.

It was easy to see that the baby was in a tonic spasm and, at the same time, suffering intense pain.

I knew that the child was cutting molars and the grandmother said that they had been giving the baby Elixir Coco-Quinine (Lilly), for a cold; also, a dose of Castoria had been given just before the present attack.

All else aside, here was urgency! and it was up to yours truly to relieve that baby, and do it now. I got my Hyoscyamine, gave to the child, under the tongue, 1/1000 grain and awaited results. Baby is fourteen months old.

In three minutes, by the clock, the spasm gave way and baby was as limp as a wet rag. In five minutes, the crying ceased and baby was looking sleepy, except for the fact that the pupils were largely dilated and the eyes shone like electric lamps. There was no dryness of the mouth or fauces; on the contrary, it looked more like salivation than its opposite.

The danger passed and, as the Castoria had not operated, I ordered an enema which was duly administered.

The night passed uneventfully and, whether the trouble was caused by the teething, the quinine (8 grains had been given in fourteen hours), or the Castoria, I do not know. However, I do know that any hypothesis that I might offer was driven into obscurity by the hyoscyamine. On Sunday morning, when I called to see how my patient had passed the night, he was able to greet me with "howdy do" and a very polite bow.

W. T. THACKERAY.

Fowlerton, Tex.

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[It is the part of wisdom to keep in mind the preeminent antispasmodic properties of hyoscyamine, which are truly remarkable. Hyoscyamine should be a constant part in our emergency case and, also, it should never be forgotten when the question of relieving spasm arises. The drug will not often disappoint, and it can be given in such small doses as to be innocent of doing harm.—ED.]

"A PUZZLING CASE"

As one man's guess is as good as another's, here is mine (August issue, page 603). The baby probably had an icterus trouble or, as I have found in my cases of flu, a condition that manifests itself with these train of symptoms after birth. I have never lost one with this condition, because I immediately ordered calomel, with saline laxative first thing next morning; then, in the evening, I began "Corrective, Infants" until the symptoms clear up. If green shows in the bowel movements at any time, stop the correctives and give a round of calomel and saline as before. Then repeat the corrective until the bowel passages are normal in color and consistency. All the time, large quantities of cool boiled water are given, but the baby is nursed every two hours. Keep it warm with artificial heat; brucine if needed.

I don't know as I have given the reason why I have diagnosed it in this way, but have tried to. As I say, I have never lost one, and a number of other physicians have lost them in this same condition. A year ago last spring, or, rather, in 1921, I had 24 different babies with this condition under my care. They had been delivered by ten different doctors and one was so far gone, when I was called, that it was in convulsions.

E. L. MEREDITH.

Ogallala, Neb.

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[To diagnose the condition described by

Doctor Acheson as "icterus," does not help a lot; for the simple reason that jaundice is a sequel of a pathological condition in the liver. It would have to be shown what caused the jaundice, and that is what Doctor Acheson wanted. Besides, Doctor Meredith's experiences are not quite parallel. They concern infants with *icterus neonatorum,* with which we are quite familiar. Usually, this icterus clears up spontaneously; it is not often that it becomes serious. In Doctor Acheson's little patient, there was nothing to show what was wrong in the liver, there was no time to follow any definite plan of treatment, even if one could have been outlined. The baby succumbed fifty-eight hours after birth. There had been no stormy symptoms, no definite signs of illness; only marked and increasing inanition. The icterus was clearly secondary and did not, of itself, cause death. What, we should like **to know, might have** been the condition of the liver? It was a congenital fault. Who can clear up the riddle?—Ed.]

PSYCHIC INVESTIGATION

It seems strange that so little is published in medical journals concerning psychic phenomena, when the lay journals are full of them. Shortly after the World War, the magazines were full of supposed communications from the dead. This story-writing fad died out, but we were not informed as to any conclusions. Our good poet, Geo. H. Candler, was rather severely criticized because he wrote an article in which he disagreed with spiritualists. He had a right to his opinion and so had those who retaliated. But replies should be kept in a good spirit.

It may be presumption on my part to contribute anything on this subject, but, to my mind, anything, however small, which will aid in the differentiation between telepathy and spiritism is pertinent rather than impertinent.

For some years past, many books purporting to have been dictated by spirits have been published. Among the interesting ones were "The Twentieth Plane" by Dr. Albert Durant Watson and "The Dawn of the Awakened Mind" by Dr. John S. King, president of the Canadian Society of Psychological Research. After reading both books, I was impressed with the idea that they were due to the unconscious versatility of the authors, modified at times by the brain of the operator of the Ouija board. The latter, of course, is used only as a method of abstraction in order that thought waves can be received. In the above-named work of Dr. King, I wish to call particular attention to a paragraph on page 222. Dr. King is interviewing Socrates. The latter's spirit says: "I'll try to aid your wish to be a speaker eloquent; for, to me, it was like a necessity. *I walked upon the shore with pebbles in my mouth,* to be a means of teaching my delinquent tongue to understand it must obey my least command. Yet, when I won, the hemlock tea was all that fate awarded me. Yes, I am alive and here today. I have my influence." Now, it was *Demosthenes,* the orator, who walked the beach with pebbles in his mouth. Does this not show that a temporary lapse of memory on the part of Dr. King led his uninformed "sensitive" to reproduce an error? It is unbelievable that the spirit of Socrates could make such a mistake. That the sensitive, or operator, does modify the original thought, I shall demonstrate by two occurrences in my household where we have had a Ouija board for amusement, for many years.

About 20 years ago, I went into the house from the office and found my niece and my sister-in-law working the board. One of them said, "Ask it a question." I said, "There was a boy in the office, what is his name?" I concentrated on the name "Leland." Very promptly, the board spelled out *"The same as your own son."* The only explanation to this is that, in my subconscious, it was stronger that the boy was named after my son than was the name itself. But, some psychologists say that we have no subconscious. Then what?

The other instance concerned an occasion when I asked a lady operator of the Ouija the maiden name of a married lady I had but lately met. I am positive, the operator did not know it. The board spelled "goodbye." The operator said it did not wish to answer. I replied that it did not know. It then spelled out the slang phrase, "Oh, rats!" I told the operator that she thought that. She replied that she did not use slang. I insisted on a reply to my first question. To my astonishment, it spelled *"If you must know,* Miss Love." The name was correct, but I had thought only of the name *Love.* Evidently, this odd reply was due to the impatience of the operator, although she denied this.

I believe in Telepathy and believe, further, that it will be in practical use before long. All we need is, to learn to use it. This has been a matter of common conversation in my home for a number of years. I believe that

telepathy will explain all spirit phenomena.

In regard to this belief, I may relate that, forty years ago, my preceptor and I were driving along a road in Westmoreland County, near Saltsburg, one evening, when he casually remarked, "This is called the haunted bridge." It was an ordinary wagon bridge over Beaver Run. I asked, why. He replied that families nearby reported that persons had been seen walking along and who disappeared, to them, miraculously. He said that a Mr. G. had told him that he saw persons, strangers to him, walking as ordinary pedestrians and that they suddenly disappeared. "Just where we see that woman and little child," he continued, as I was incredulously listening. To our astonishment, the "woman and little child" vanished. We got out of the buggy, searched up and down the road and even under the bridge. We saw no trace of them. Neither of us being superstitious or knowing much of modern ideas of either, telepathy or materialization, we tried to satisfy our minds by assuming that some peculiar condition of the atmosphere in the valley had produced a mirage. In the light of my present belief, it is more reasonable to think that my preceptor visualized the figures and I, listening intently, became attuned, my brain a receiving station, and I saw what he did mentally.

One other instance. My son, Arthur (now deceased), with whom I was always in close correspondence, was in Mexico, prior to the World War. He witnessed the Battle of Monterrey and came home over a trail, the railroads being out of service. I had not heard from him for weeks. One night, I became impressed with the idea that he would arrive home on the "Bummer," a train due here at 1:25 A. M. I had no knowledge of his intention of coming home. He did not arrive as my impression led me to believe he would; but he did arrive by the next train in the morning, having missed the "Bummer" on which he expected to travel.

These are not isolated cases. I meet with many among my patients. They are not supernatural. Why should we not investigate and classify? I have just finished reading about Lola and Rolf, the educated German dogs. I cannot but believe that their seemingly educated replies by rapping are but the result of thought transference from their teachers and that the dogs are only animated Ouija boards, repeating the suggestions of their masters.

NOTE: It was my son, Arthur C. Henry, who called my attention to the discrepancy in the work of Dr. J. S. King. My son volunteered in the World War, fought in St. Mihiel and the Argonne, was gassed and died of pneumonia after his return.

T. J. HENRY.

Apollo, Pa.

THE COUNTRY DOCTOR

The June number of the Journal has been read through, and I just want to express my appreciation of at least one article, viz., the letter from Charles S. Moody, on the Country Doctor. He has hit the nail on the head every time, and has driven home a good lesson to some of these modern high-brows. The practice of Medicine is not an organized mechanical trade, operating according to fixed laws or subject to the dicta of any set of men, no matter how scientific or highly educated they may be. Medicine is both, a science and an art; and, while I have every respect for those who cultivate the purely scientific side of it, I am not sure, but that it finds its best exponents in the country doctors, as an art. We all appreciate our hospitals, laboratories, clinics, etc., indeed, we could not do without them. However, let us not forget that, in the practice of the healing art, we are dealing as one individual with another, where there must be mutual cooperation, understanding and confidence, and where the personal coefficient in the solution of the problem bulks large.

Let the country doctor acquire the best scientific education he can get. Then, with a heart full of sympathy, a love for his profession and a manner pleasing and tactful, he will soon make himself a man of power and influence in the rural community, and the hard-handed sons of toil will not be so averse to giving him the pecuniary awards for his labour and to acknowledge that he has honestly earned them.

This condition of affairs can exist only, in my opinion, where we have the real family doctor, the general practitioner. Years ago, before this ultrascientific era, people became ill and were ministered to by the medical men of the day, sometimes very indifferently, it is true, but, on the other hand, often with marked success and to the mutual satisfaction of patient and physician. Are we not in danger these days of losing that intangible something between the medical man and his patient, which used to exist, and which was a bond of confidence between them, making for success in the treatment?

I have had hospital, city and country experience, and I think I can truthfully say, that

I prefer the country life; I won't say any kind of country life, but modern rural life in a civilized country, where there are some of the modern aids to comfort, such as good roads, motor cars, telephones, electricity or gas. Believe me, there is no life like it. So, while I agree in the main with your contributor, yet I think there is something worth having, in "the blessings of pure, warm sunshine and home-cooked victuals."

GEO. ACHESON.

Kingston, King's Co., N. B.

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[Doctor Acheson prefers the country life—that is, "modern rural life in a civilized country, where there are some of the modern aids to comfort, such as good roads, motor cars, telephones, electricity or gas." Good. When the present editorial writer started in country practice (and it was not even half a century ago, either), the roads were mud, and horse and buggy got mired many times, in spring. There were no motor cars, no telephones; there was neither electricity nor gas. In short, it was the old-fashioned country life with all that it implied then. Things have changed vastly, since then, we are told, and there was room for change. Yet, with all the hardships, all the difficulties, the gruelling work, the isolation, we sometimes think back to that time with a rather wistful fondness. There was good work to be done. The Doctor occupied an important position in the scheme of things. His standing in the community was assured. Taking it all, the bad with the good, even then it was quite possible to live happily and contentedly.

To be sure, there was the question of financial returns. They were anything but adequate. Perhaps we did not collect closely enough. Possibly, we lent too ready an ear to every hard-time story. We remember one farmer who based his plea for leniency on the fact that he had twelve children, the oldest about fourteen. We could not resist the temptation to point out to him that that was entirely his own doing and not ours. However, if a way can be found to finance the country doctor suitably, practice in the country offers many advantages over that in the city.—ED.]

THE DOCTOR'S TRAINING

I am glad to read and commend your editorial on "Too Many Doctors or Too Few."

I can see now, after twenty years' active, general practice, where my training was defective and where non-essential for a general practitioner in a town of 2,500. I know that I was helped by my year's experience in the U. S. A. hospital corps during the Spanish-American war and that my medical course could not have been shortened. But I would have been benefited if I had had one or two years' experience as an assistant with some busy man in general practice.

If, instead of the seven-years' course as at present, there were a four-years' course with three years of optional work, either in some hospital clinic or as an assistant to some general practitioner, we could be training a lot of worthy men to be just doctors, in the medium-sized communities, and not so many surgeons and specialists; and then there would be some incentive for many school teachers and men of as good personalities to train for this small-town work that is now prohibitive in cost and time to them.

I have never aspired to do major surgery but have always tried to keep up to date on all new things and have always believed that, if I were a thorough, scientific man, I could make the application of any truth better than any irregular. So, I have always tried to get the truth out of new things and, in consequence, the osteopaths, chiropractors and christian scientists have never been able to get any foothold here.

I am usually a sucker for new things and have owned an Ozone machine, a Kromeyer lamp and many other office appliances that I sometimes junked or again traded off in a year for other apparatus that I thought would be more useful in a small town.

I am now trying out a Farnham electrome machine and am really having some excellent results, if they only last. I don't see why they should not be as permanent as medical relief.

Go to it. No problem is ever settled till settled right and the medical oligarchy are either not practical men or they have sold their souls.

F. W. STEWART.

Colfax, Iowa.

PROBLEMS OF THE COUNTRY DOCTOR

Panics, boll-wevils and everything seem to combine against us, poor country doctors—so much that it seems that we are not able to pay all sorts of taxes and meet the actual expense in our every day practice. However, I am taking one more shot at CLINICAL MEDICINE by sending in a renewal for this year, as (the way I see it) one article alone, that on

"Standardization" (July issue, page 485), is worth the price. I extend my hand to the author of this article and bid him Godspeed.

This tendency to classification does not stop at standardizing doctors, but, here in free America, there is propaganda circulated that will standardize the preacher and, when this is done, there will be censorship for both; and then, what?

This scribe is now 66 years old—have practised in the country for 40 years and, no doubt, am dubbed an old "fogy," which may or may not be just. Yet, the records show that, in all these years of general practice, I have never lost a case in obstetrics.

We should be allowed to be free and independent thinkers. What has been gained by bed-side experience and observation by men, in the past and present, should be a safe and sound way to treat sick people and, as the old doctor said: "Eyes were made before microscopes, ears before stethoscopes; brains before laboratories." That is as true as ever. All these things are good and should be used in connection with the knowledge gained by every-day practice, when needed. Still, you may blindfold an experienced practitioner, and he can diagnose typhoid fever, pneumonia and many other diseases without eyes or thermometer.

When the old family doctor does all this away from any laboratory or other means of the present day, he knows full well what treatment is best suited to each individual case.

"Can you standardize personality?" We thought not. The true physician is not merely a machine to be moved by some remote power. He is in possession of the five great senses, sight and touch being the greatest of all and, with brains behind these, he (the doctor) has a wonderful working machine all his own, which has, in the past as also in the present, answered the call of "nature" when disease invades the human body.

He does not sit down and wait for someone higher up to make a diagnosis, or "standardize" him and tell him whether or not the patient has the bacillus of Eberth. He does not wait to get answer from others, when his patient has pneumonia, whether pneumococci are in the sputum. No, sir: He dives right into it with all the "arms of precision" at his command. He does not deny the existence of pneumococcus germs, but he loses no time waiting to get a confirmation of his diagnosis, because he is sure of his ground.

At the same time, he (the doctor) accepts everything that is good and which time and test have tried out. He does not deny the infectiousness of disease and learns how to prevent its spread among the earth's inhabitants.

But, from the signs of the times, the good old family doctor is fast passing, on account of specializing.

Unless some change is made soon, in less than twenty-five years there will be a great revolution in this country on account of the scarcity of doctors in rural communities and small towns; for the people will rise up and demand a change so that they can have medical attention at home instead of being carted to hospital in some faraway city.

Then, again, there are always some people very poor, as we have them with us in all countries, among all people—that will have to suffer and die without medical aid.

Now, Mr. Editor, these are a few thoughts thrown together at random. If they are worth anything use them, but don't cast my subscription and check along with it into your great big waste-basket, and don't "Standardize the old Scribe."

Milner, Ga. J. M. F. Barro.

[We will do neither, Doctor Barro. Subscription and check have been entered to your credit, and we have no wish to "standardize" you, although we do classify you in that remarkable *genus*, "physician," and its more wonderful *species*, "country-doctor." We have a great respect for the American country-doctor, for his devotion, his resourcefulness, his keen judgment, his solid knowledge.

The problem of the country doctor and of the people living in country and in small towns is truly a difficult one. It has been discussed before now in this journal and we are anxious to continue and extend the discussion in order to, mayhap, arrive at a tangible conclusion. Who knows but what we may, in time, succeed in elaborating some plan that might be proposed and through which the difficulties existing now may be solved. Let us have a general discussion, and let all those who have some constructive suggestion take part.—Ed.]

THE SOUTHERN "CRACKER"

No social class in this world has any monopoly of all the virtues—nor alas! of all the vices! Wealth and equipage, if retained long enough, do indeed insure a kind of gloss and culture, which may be, and often is, purely superficial and artificial.

Some of the sublimest heights of heroic virtue I have seen unfolded in the lives of the poor and the humble in the country life of the socalled "crackers" in the South. Indeed, every and any country doctor of this section, of any lengthened experience, could bear out this statement.

As a class, these people are inured to poverty. They were born into it and it is their daily life and heritage, often for generations. They become more or less clannish and individualistic. The city is, to them, only a place of wonder and delight, to go to occasionally so as to get a touch of the great big world that is far removed from their own sphere. They develop manners and customs and modes of speech peculiar to themselves. There is a hardness, a grittiness about their nature that is very noticeable and very individual. They are all stoics. They suffer and endure pain with a seeming naturalness purely Spartan, and which your city man, woman or child would squirm at. Often they go for days and weeks in their sickness, without resorting to help from a doctor, until, when he does see them, he often wonders why they are not already dead. This self-deprivation is not alone because of poverty. They seem to have a stolid indifference, too, if not a distinct pride in bearing pain. Then, again, they may be very childish and simple and fly to the "Doc" upon the most trivial occasions.

One thing I want to stress, though; they are not as big fools as they look, nor are they as poor-spirited as they seem on the surface. I know them. Have lived among them. If they are your friends, no battlemented castle affords you a safer retreat from harm than their homes. If they see in you an enemy, a cynic and a ridiculer of their ways (and they are peculiarly sensitive on this), I am sorry for your safety too long among them. They are simple, true, hospitable and terribly in earnest. Woe to the man who wilfully deceives them and falls into their hands!

I will relate a few instances of my experiences with them.

One day, in summer, I was called to one of their homes; to see a "sick child", I was told. It was the regulation one-room shack, and "shed" for the eats—a pine board structure, no glass windows, two openings in the end near the chimney ("stack") and one in the other end. A back door opened into the "shed" room, or kitchen. On a shelf in this room, was a cedar bucket of water and a tin dipper. A single bed was in one corner of the front room; in the other, an old shackelty bureau, or dresser, on which were some tawdry female fineries and toilet articles. I remember an old half-worn brush and comb, and a box in which were some pitiably simple patterns of lace, and a small, round box of powder, "lily white" for the complexion. A half-filled bottle of Hoyts' Cologne was there, too, and a single red summer rose rested in a broken-neck bottle of water doing service as a vase. A rickety chair and an old box stood beside the bed; otherwise the room was bare and cheerless. No sooner had I passed the door lintel, when a voice greeted me from the bed: "Doc, God-ding your soul, I want you to cure me now." I went to it and found a red-haired, freckle-face boy of ten years, in a raging fever—103°. A pale bedraggled woman was on the other side of the bed. I looked at her inquisitively. A faint drawn smile was on her weary face; but she said nothing. "Why, of course, Tom (his name was Tom), that's what I've come for; what's the matter?" He put his little withered hand on his stomach. "Its thar, Doc—I'm a hurtin' dreadfully." "Flu" had been in that community, but that wasn't what was "ailin" Tom. He belonged to that large class of half-starved country children in the South—victims of anemia, hookworm, etc., etc. Peaches and plums and watermelons were ripe, and wild "mukadrines." A "round" of calomel soda followed by castor oil and "tonics" soon set Tom all O. K.—no charge.

One summer evening, I was sitting in my little office, when two women entered. One of them bore a sleeping infant in her arms, about two months old. The other woman was evidently a sister. Both were young and not unlikely looking. The young mother asked me abruptly, "Doc will you look at my baby?" "Certainly, that's my job." (These people like you to be laconic and to the point.) "What's the trouble?" The woman approached me confidentially and away from the other and, with her beautiful brownish-black eyes stretched open wide, said in a half whisper: "Doc, I believe he's fettered." I was puzzled. What was the pathology of "fettered"? I couldn't imagine, I had to bluff. "Strip the child and put him on the couch," said I. "Oh, must I take off his clothes?" she said in seeming alarm, as though she thought I was going to do an Abrahamic sacrifice, I suppose. "Surely you must." Her hands ran rapidly over the precious bundle and, in a few minutes, there was as fine a physical specimen of the Genus Homo as ever woven by warp and woop in passion's infernal loom! (By the

way, he was a *love*-child.) Briskly I went over the pink bundle of flesh, still wondering to myself what "fettered" could mean. After a bit, I "dropped," I went to the desk and got a small scalpel. Slowly I raised the glittering blade. The mother's face went to the wall; in silent prayer, I suppose. The younger sister was sniffling audibly aside. One fell "knick," and the little scoundrel was unfettered —(frenotomy?). He looked at me in pained surprise for a moment, then stuffed his chubby hands in his mouth and smiled! "Is it all over?" a woman's hot breath was by my side as I cleared the surgical field of a little blood. Blood! "Ah, the dear God! Come to it's Muzzer—Muzzer," etc., etc.—$2.00.

Scene 3. A natal chamber. Through the mist of years, I see a withered old hag of a midwife by my side, and hear her voice: "Doc, save the chord! The longer the vine, the better the root!"—$15.00.

T. B. CULLENS.

Ozark, Ala.

"FOUR DOCTORS FIGHTING TO SAVE PRESIDENT HARDING"

July 29.—Doing their best, but every move they make tends to prevent recovery. Still, our only hope is that the President will prove himself one of the many who are "too tough to kill."

Ptomaine poisoning—what is it? Intestinal autotoxemia from wrong eating or overeating. In every such case, the food is not digested fully and inevitably putrefies. A day or two or three of therapeutic fasting aborts the case and brings convalescence. But, what do the eminent physicians do? Feed, feed, feed, whether there be appetite or no appetite; even in the face of nausea and diarrhea.

"The doctors are watching the patient's heart," we read. At the least sign of trouble with this organ, it usually means digitalis, a drug that has caused hundreds of thousands of hearts to stop beating entirely. Of course, it doesn't always kill "this time"; but it is inevitably harmful.

July 30.—"Turn for the worse", but, the bulletin says, "He takes nourishment regularly"! In such cases food is not nourishment but poison, as already explained. Every morsel and sip is a threat to life.

Years ago, Surgeon-General Dale knew the value of therapeutic fasting, and he declared that "if people, when they get sick, would stop eating, they would get well."

Aug. 2.—"Indigestion and pain after eating two poached eggs". Eggs are bad for the well and worse for the sick.

Here we have six or seven prominent physicians, honest, earnest men, treating their patients as they were taught to, getting the best possible advertising (of course), while the poor laity suffer and die prematurely, and pay out their good money for a kind of treatment that in days to come will be universally condemned, as it is now by the few well-informed men in and out of the medical profession.

Feeding a critically sick patient and giving poisonous drugs in the notion that they are curative will, in time, be regarded as malpractice. A few years ago, it was cabled from London that, in an address before a medical association, Sir Frederick Treves, a surgeon of note, declared, "I look forward to the time when the people will give up the extraordinary habit of taking medicine when they are sick!"

The several doctors to whom I have referred "believe in" vivisection, vaccination and all the serums; while, in fact, every injection of filthy matter into the body is a direct violation of the first law of health and life, namely, to maintain, in so far as possible, the purity of the blood. Should it ever come to pass that poisoning the blood can aid in the prevention or cure of disease, we shall see water running uphill naturally, for the laws of nature will have been reversed.

CHARLES E. PAGE.

Boston, Mass.

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Addendum: Since the foregoing article was written, President Harding has passed away, a victim of a treatment that kills thousands of good men and women every day in the year. He died a few hours after the painful indigestion induced by the poached eggs, on Aug. 2nd. But, the fact that the President was tough enough to live one week, in spite of the treatment, is proof to my mind that under right treatment he would have recovered. He should have fasted until convalescent and hungry, taking fresh water according to desire. Then, very moderate portions of the plainest food, with no forcing or tempting the appetite.

C. E. P.

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[We agree with Doctor Page, in that we disapprove of feeding in digestive disturbances until the appetite returns spontaneously. After an attack of ptomaine poisoning, especially, the feeding had better be managed with great care, only the most easily digested food stuffs being permissible. However, ptomaine poisoning is not, as Doctor Page has it, auto-

intoxication from wrong eating or overeating. It is an exogenic poisoning, the poison being introduced with spoiled food. It does seem strange that the President should have been permitted to eat sea food at a time when it is considered to be open to suspicion. True, in such cases, the food is not digested fully and putrefies; but, long before then, the poison contained in the food has exerted its baneful effects.

The least trouble with the heart, by no means means usually digitalis, as Doctor Page opines. Not any more. It has for years been taught that digitalis is actually contraindicated in certain heart lesions and that it is of use only in quite definite and well defined disturbances of the heart function. Then, given in the right place, in the right dose and in the right manner, it does good. Under other circumstances, it is prone to work harm.

Whether the injection of vaccines or of serums into the circulation means the introduction of "filthy matter" or whether this is but a "euphemism" dictated by prejudice, we will not discuss on this occasion. Usually, when vaccines or serums are required, the body already is filled with "filthy matter" owing to the bacterial infection, and the immunizing agents enable it to get rid of that matter more promptly than it could do without this assistance. There is no question of "poisoning the blood". Immunization, either active or passive, acts quite in accordance with natural processes.—Ed.]

THE COUNTRY DOCTOR'S PLIGHT

Having just finished reading "Too Many Doctors—Or Too Few?" (July issue, p. 460), I wish to express myself on the subject, but, first, just an explanation.

Having had sickness in my family and then the flu, four years ago, the expenses were eight times normal. Yet, I charged normal fees, because I was so busy that I had no time to figure out actual expenses until it was too late. Then more sickness in my family and, being too good to people, answering calls and furnishing surgical dressings, drugs, also gas and oil for car and, in addition, letting them have credit; finally, the financial conditions of the locality—all this was enough to put a man on his bottoms.

Shouldn't a physician get hard-hearted and demand his money for his services, so that he can give his children good food, clothing, etc., and an education? Do the bankers help the doctors?

There is no shortage of doctors, but the ones in country practice are getting tired of being made the goat for the good of humanity. I for one am and, from now on, I am going to get something for myself and my family. I have practiced fourteen years, very successfully, and feel that I have done my share for the laity. Now, I am open for a new location, either unopposed country practice where they will give me guarantees similar to the contract at Sharon, Kan., or else, I am going to a city and take my chances; for, I am competent and capable to compete with big men.

I believe the contract mentioned to be very good and it is what the country practices will eventually have to do, that is, the biggest share of them. Wherever I move, they will have to give me a guarantee before I go. If any community wants a good physician, and will put up the guarantee, I am open to their proposition.

Country Doctor.

—

[The trouble with a good many physicians is that they went on rendering service for the same fees that has been established arbitrarily, years ago, when things were so cheap that you could buy a square meal for a quarter, a good suit of clothes for $25.00, and a pair of shoes for $2.50. As the street slang has it: "Them days is gone forever."

Some years ago, when the cost of living had rocketed sky high, physicians should have increased their fees, but did not, except in the cities and then only in some portions of them. For some foolish reason, medical men are afraid to charge in proportion to a fair return on the capital that they have invested in their medical education and in their establishment and, furthermore, on the expenses that they are under "to do business."

As you found out, to your sorrow, you never figured and, therefore, could not see how inadequately your services were paid.

The way out? It seems to me that country physicians should have heart to heart talks with the preachers and the priests serving the churches in their neighborhoods; also with the editors and publishers of the country papers and with the bankers in their towns. They should show these people, who decidedly influence public opinion, that they have a certain sum invested in their medical and special education. This is capital which should earn dividends at no less than seven percent. They have more money invested in house, office, fixtures, books, and so forth. It costs certain sums to keep the drug cabinet properly sup-

plied. Then, there is a price to be set on the actual services and, *nota bene,* on knowing how to render these services. If all these things are taken into consideration, any clergyman or editor, any storekeeper or other business man, any intelligent farmer will understand the justice of proper fees.

Another thing, office consultations, also operations (except in emergency), confinements, in short, any professional services that can be planned for, should invariably be paid promptly when the services are rendered. It is possible to accustom your clients to that, although it may be difficult. There never should be a baby born into the world other than C. O. D. The parents always have several months to prepare, and it is inexcusable to let a confinement bill run. I admit that some of my own babies have not been paid for, although, by now, they are old enough to vote. Nevertheless, my advice is good.

The Sharon experiment is very interesting and can, I believe be duplicated almost anywhere. Why don't you let some of your influential citizens read that particular article and, perhaps, communicate with the Sharon people? You can start such an association yourself, merely by interesting the leading citizens in your community in the matter. Why not be a pioneer? You can do it. From a business standpoint, the members of the association are so manifestly the gainers from the arrangement, their doctor's bills are so low for the year, that it seems to me, there can hardly be a community where it would not be possible to start something of the same sort.—Ed.]

DIAGNOSTIC QUARTETS:

[Some time ago, Dr. Price submitted to us the manuscript copy published in the following columns. We were pleased with the caustic and succinct guides for diagnosis. Of course, it would not do to let these paragraphs entirely supersede the study of books and special articles on diagnosis. However, in many instances, they will be found very helpful.—Ed.]

Abdominal Extension

1.—In ascites: Umbilicus forced out, distended surfaces smooth, showing broadening at base of thorax, bulging of flanks in dorsal position, enlargement of superficial vein. Dullness changes with position. Wavelike impulse to hand when tapping opposite side.

2.—In Ovaritis: History of growth, unilateral largeness, anterior fixed dullness.

3.—In Pregnancy: Different shape, forced dullness (this is the case also in bladder irritation) and tenderness.

4.—In tympanites: Universal tympany. In peritonitis, smaller effusion and areas of dullness.

Adrenalitis (Hypoadrenia)

1.—Asthenia: Lack of pep.

2.—Low blood pressure: Low pulse.

3.—Inordinate appetite, loss of sleep and weight.

4.—Urine acid, sugar polyuria.

Angina Pectoris

1.—Intense heart pain with fear of death.

2.—Look for diabetes, syphilis, gout, endocarditis.

3.—Motionless ashy face, profuse perspiration.

4.—Syncope in attacks.

Aortic Insufficiency

1.—Dyspnea, faintness, flashes.

2.—Palpitation on exertion and pain in cardiac region.

3.—Edema of legs.

4.—Signs of endocarditis.

Aortic Stenosis

1.—Signs of appendicitis and arteriosclerosis.

2.—Dizziness.

3.—Initial insufficiency.

4.—Dilation and pulmonary engorgement.

Appendicitis

1.—Nausea, vomiting, diarrhea, constipation.

2.—Colic-like pains in right inguinal region.

3.—Pain at McBurney's point, drawing up of legs.

4.—Loss of appetite.

Asthma

1.—Nervous depression.

2.—Constriction of thorax.

3.—Temperature subnormal, cold hands and feet.

4.—Pellets of mucus discharged, paroxysms.

Autointoxication

1.—Drowsiness, lack of energy, headaches, periods of depression, giddiness and dizziness.

2.—Muscular weakness.

3.—Loss of appetite or this is irregular; flatulence, discomfort, furred tongue, dyspepsia.

4.—Pasty complexion, offensive perspiration, lack of circulation, anemia.

Breathing as a Sign

If you're shocked, breathe shallow.
In faint or sunstroke, sigh.
In apoplexy, you must snore.
But with morphine breathe full and slower till you die.

Broncho-Pneumonia

1.—Physical signs of bronchitis, sibilant breathing, subcrepitant rules, harsh breathing.

2.—Areas of slight or distinct dullness.

3.—Cyanosis may increase, other symptoms decreasing as asphyxia deepens; moist soles, cardiac weakness.

4.—Course, a week.

Carbolic Poison

Ease your mouth with alcohol if you've burned it sore.

Mix with equal parts of water and gulp tablespoonfuls four.

Follow this with Epsom salts, although the dose may bore.

Then use raw eggs—if stiff the price, a coffin costs lots more.

Chorea

1.—History of rheumatism, scarlet fever, endocarditis.

2.—Jerky movements.

3.—Temper, loss of speech and memory.

4.—Sôft, systolic murmurs at base.

Coma

Apoplectic: 1.—Flushed face, loud and low breathing.

2.—Pulse full and strong.

3.—Pupils dilated and do not react to light.

4.—Face paralyzed on one side.

Urea: 1.—Swollen face, urinous breath.

2.—Irregular, high-tension pulse.

3.—Pupils may be dilated.

4.—Twitching of muscles, mouth to one side.

Opium: 1.—Face dusky and cyanotic.

2.—Respiration slow, irregular pulse.

3.—Pupils contracted to pin point.

4.—History and smell.

Alcoholic: 1.—Face flushed.

2.—Respiration normal, deep and loud.

3.—Pulse rapid.

4.—Smell of alcohol. Will respond to intercostal tickling.

Epileptic: 1.—Frothing at mouth.

2.—Jerking of muscles—clonic and tonic.

3.—Cry.

4.—History.

Gas Poisoning: 1.—History of working in same; sleeping, smell.

Sunstroke: 1.—Face flushed, skin dry.

2.—Labored respiration, quick.

3.—Profound unconsciousness.

4.—Temperature high.

Hysterical: 1.—Don't hurt oneself as in apoplexy and epilepsy.

2.—Laughing, crying.

Diabetes Mellitus

1.—Frequent urine (1025-45), 1 to 10 percent of glucose, acetone, diabetic and butyric acid (inordinate appetite).

2.—Loss of weight, sleep and strength; dry skin, short breath.

3.—Low blood pressure, low pulse.

4.—Headache, constipation, dry mouth, red tongue.

Diphtheria

1.—2 to 7 days' incubation, convulsions, pain in back and extremities.

2.—102 to 104° F. temperature. Pulse 100 to 120.

3.—Dusky gray membrane over tonsils, fauces, uvula, leaving (when removed) a bleeding surface; dirty brown flow from nose, stench.

4.—Cervical nodes swollen.

Empyema

1.—Purulent pleurisy, signs of pus, chills, pallor, irregular fever, and friction sounds.

2.—History of pneumonia, scarlet fever, typhoid, perforation of side through tuberculosis or trauma.

3.—Abrupt invasion, sweats, cough.

4.—Empyema through bronchi, chest viscous.

Endocarditis (Ulcer)

1.—Sordes on lips, tongue dry, irregular fever, chills.

2.—Headache, restlessness, delirium, dislike of light.

3.—Convulsions, stupor, joint-pains, spleen enlarged, liver congested.

4.—Ecchymotic spots, especially on feet and extremities, albumin in urine.

Erysipelas

1.—Chills, malaise, headache, temperature.

2.—Burning and redness of skin on bridge of nose and butterfly pattern over cheeks.

3.—Not below collar-line; in migrating type affects the extremities.

4.—Bleb formation and desquamation.

Fibroma

1.—Hemorrhage, leucorrhea.

2.—Pain in tumor and surrounding parts.

3.—History of hydronephrosis, pyelitis.

4.—Constipation, hemorrhoids.

Gall-Stones

1.—Sudden attack, excruciating, cutting pains in right hypochondrium, abdomen, liver, thorax, right shoulder and arm.

2.—Vomiting, drenching sweats, feeble and rapid pulse, syncope.

3.—Chill with fever, 101-103° F.

4.—Liver enlarged, tender; gall bladder swollen and palpable; jaundice, urine with bile pigment and albumin.

Gastritis (Chronic)

1.—Capricious appetite, feeling of fullness after eating.

2.—May vomit slimy mucus, mornings;

furred tongue, lassitude, vertigo, headache, unpleasant breath, stomach cough.

3.—Nausea, abdominal gas, eructation, regurgitation of bitter or tasteless fluid, catarrh.

4.—Cardialgia or heartburn.

Hernia (Strangulated)

1.—Vomiting stercoraceous.

2.—Complete constipation, rarely diarrhea.

3.—Increase in pulse, slight temperature, then subnormal.

4.—Pain tense, tender, no or slight impulse on coughing, resonant note on percussion, pain referred to umbilicus.

Hodgkin's Disease

1.—Slow anemia with enlargement of lymphatic glands.

2.—Remittent fever.

3.—Feeble cardiac action.

4.—Shortness of breath.

Internal Hemorrhage

1.—Dilated pupils.

2.—Rapid failing of circulation.

3.—Features shrunk.

4.—History of dull aching, weighty feeling some place (rupture of an aneurysm.)

Influenza

1.—Epidemic, cold.

2.—Onset sudden, chills and fever, much sweating, chilliness along spine.

3.—Pain in throat, hoarseness, catarrhal symptoms, sneezing, dry irritating cough, shooting pains in eyes and forehead, joints and muscles.

4.—Bronchial trouble, loss of appetite, nausea, vomiting, sometimes diarrhea—all give feeling of meanness.

Insanity

1.—Sleeplessness.

2.—Alteration in the emotional state.

3.—Pain or heat in head.

4.—Eye reflexes poor or wanting.

Intestinal Obstruction

1.—Diarrhea, constipation, vomiting.

2.—Cold clammy skin, pain, prostration, pallor.

3.—Extreme thirst and dry tongue.

4.—Rapid pulse, tympanites, rapid respiration, scanty urine.

Locomotor Ataxia

1.—History of excess, overwork, tires easily, painless swelling of knees and elbows, loss of bladder control.

2.—Absence of patella reflex.

3.—Romberg's sign: inability to stand erect with eyes closed.

4.—Argyll-Robertson's test: Eyes accommodate to light but not to distance. Fraenkel's: Legs can be placed at right angles to body.

Malaria

1.—Epistaxis, bleeding lips and gums.

2.—Hard chill, slow rising fever, quick jerky pulse.

3.—Dirty appearing skin, anemia, spleen enlargement.

4.—Swelling of feet and ankles.

Measles

1.—Head cold, incubation; 9 to 14 days.

2.—Fever.

3.—Koplik spots on inside of cheek, red mouth.

4.—Eruption of small papules on neck, forehead and chest on 4th day, lasting 3 to 6 days.

Morphine

1.—Heart, bad action.

2.—Unrest, sleepless, vision reduced, appetite gone.

3.—Hallucinations.

4.—Intolerable leg and back pains.

Myelitis

1.—Acute, transverse: Moderate fever, coated tongue, constipation.

2.—Pain in back and limbs on level with disease, tingling, burning, flaccid, twitchings, convulsions.

3.—Paralysis and no sensation below level.

4.—Sphincter, reflexes increased when above lumbar enlargement—absent below.

Nephritis (Chronic)

1.—Tiring easily, occipital headache, shortness of breath.

2.—High blood pressure, blood low in urea, creatinin and phosphates, blood-sugar high.

3.—Frequent and excessive urination, eye symptoms, urine loaded with albumin and casts, edema.

4.—Death by cerebral hemorrhage, failing heart, and uremia.

Neurasthenia (Gastrica)

1.—Low or irregular appetite.

2.—Fullness after eating.

3.—Sleeplessness.

4.—Sometimes dizziness.

Opium Poisoning

1.—Purple face.

2.—Pin-point pupil.

3.—Pulse slow.

4.—Possible smell in paregoric.

JOHN PRICE.

Denver, Colo.

[*To be continued.*]

What Others are Doing

INSULIN IN SEVERE DIABETES

Contrary to the views expressed frequently, especially in the daily-news sheets, insulin is not, and is not claimed to be, "a cure" for diabetes; it is a treatment. This we assert on the authority of Doctor Banting himself who contributes a brief but very practical article on the subject, together with Dr. Alexander McPhedran, to *International Clinics* (Vol 2, Thirty-third Series, 1923).

He says that, during the first twenty-four hours, diabetic patients remain on the diet maintained before admission, so that some idea of the severity of the disease may be gained. Then they are placed upon a basal requirement table which is estimated from Du Bois chart and Aub Du Bois table. On this basal requirement diet, the patients remain for a week, during which time careful histories are taken and complete physical examinations done. Blood sugars are estimated before breakfast and three hours after, in order to determine accurately the fasting level and the result of food. A twenty-four-hour specimen of urine is examined qualitatively and quantitively for sugar and acetone. When on a basal requirement diet, which has a low carbohydrate value, patients soon excrete fairly constant amounts of sugar. If, then, a patient becomes sugar free, the diet is raised and, if he can take 500 calories over and above his basal requirement, his case is not considered sufficiently severe for insulin treatment.

It follows that a case of diabetes mellitus is considered severe when the patient is unable to metabolize 500 calories over and above his basal requirement. Before commencing insulin treatment, it is essential to know the tolerance of the patient; that is to say, the number of units of insulin that can be produced in the patient's own pancreas. It is understood, of course, that insulin treatment consists in the artificial administration of the substance sufficiently to compensate for the deficiency of the patient's own production. The treatment aims to balance the increased diet over and above the patient's own tolerance with the artificial supply of the internal secretion.

A unit of insulin is the amount of active principle required to reduce the blood sugar of a rabbit, which has been starved eighteen hours, from its normal level to approximately 0.120 percent to 0.45 percent. [Mem.: This is copied verbatim from the report. We apprehend a printers' error. Should it not be 1.20 percent instead of 0.120 percent?—Ed.]

The dose of insulin is calculated on the height of blood sugar and the average number of Grams excreted daily. A patient with a high blood sugar requires a larger initial dose because the blood sugar must be reduced to its normal level.

Insulin is best given twenty to thirty minutes before meals. Then absorption of insulin and of carbohydrate from the gastrointestinal tract takes place simultaneously and the patient's blood sugar remains constantly below the kidney threshhold. Normally, when food is absorbed from the gastrointestinal tract, there is an increased production of insulin by the islet cells to deal with the carbohydrate. This is in abeyance when the islet cells are non-active. Since there is normally a greater activity of the islets following a meal, the properly balanced administration of the internal secretion (as to time and dose) and of the carbohydrate ingested will make it possible to maintain the diabetic patient sugar-free on the diet that is sufficient for his daily requirements.

Usually, the patient receives two doses a day, one before breakfast, the other before the evening meal. It may be found advisable to give a larger dose in the morning, say, 15 units before breakfast and 10 units before supper. In very severe cases, three or four doses may be required. In milder cases, one morning dose may be sufficient.

It has been found advisable to render all cases of diabetes sugar-free by means of insulin, while they are on an adequate diet.

One of the difficulties, or the accidents, met with is insulin shock which is a hypoglycemic reaction. This is a definite clinical phenomenon caused by an overdose of insulin reducing the blood sugar below its normal level. It can be recognized by the patient, since the subjective sensations are characteristic. The reaction depends not only on the extent but also on the rapidity of fall in the percentage of sugar

in the blood. Reactions are characterized by pallor, sweating, stupor, increased pulse-rate, peculiar sensations of impending danger, incoherence in speech, tremulousness and, finally, coma and convulsions. Elevation of blood sugar immediately relieves the condition. This is accomplished by the oral administration of glucose, if the patient is conscious, or by the administration of 10 to 15 minims of epinephrin followed by glucose, if the patient is in coma.

Experimentally, the administration of calcium relieves the hypoglycemic convulsions occurring in normal rabbits without raising the percentage of sugar in the blood. Clinically, it has been shown that certain patients are less liable to hypoglycemic reactions when receiving 10 Grams of calcium lactate, three times a day. [This is interesting, in view of the assertion made so frequently that the oral administration of calcium is futile, inasmuch as absorption does not occur(?). Is this another instance of theory versus practice?—ED.]

In severe diabetes complicated with persistent diarrhea, the response to insulin treatment is not satisfactory. Here, there exists seemingly a hypersensitiveness to insulin: hypoglycemic reaction are frequent and severe. In one case with achlorhydria, the administration of hydrochloric acid and of calcium chloride acted favorably on the diarrhea and on the hypoglycemic reaction. In diabetes of long duration, where the strain on the islet cells has been persistent and where this is relieved by adequate insulin treatment, the tolerance is increased and the dosage of insulin can be reduced.

Insulin enables the severely ill diabetic to burn up carbohydrate, which is shown by the rise in the respiratory quotient following the administration of glucose and insulin. It permits glucose to be stored as glycogen in the liver for future use. The burning of carbohydrate makes possible the complete oxidation of fats, and acidosis disappears. Owing to normal blood sugar, the depressing thirst is relieved, so that intake and output of fluid are diminished. Since the tissue cells are properly nourished by the increased diet, there is no longer the constantly called for food: the hunger pain of the severe diabetic is replaced by normal appetite. On the increased caloric intake, the patient gains rapidly in strength and weight.

PHYSIOLOGICAL EFFECTS OF INSULIN

In a paper contributed to *International Clinics* (Vol. 2, 33rd Series, 1923, p. 6), Dr. Seale Harris believes that, aside from the known effect of insulin, namely, the increased carbohydrate tolerance, there is also a feeling of such pronounced well-being as to suggest a stimulating effect upon the nervous system. Doctor Harris is inclined to think that this is not merely psychic; his observations lead him to believe that insulin has a direct effect upon the nervous system.

It is too soon to predict the curative effects of insulin, but, with the known results that have been achieved with its use, there can be no question of its permanent place in diabetic therapy. It is possible that by giving rest to the pancreas in the early stages insulin will cure many cases permanently. It is certain that it will at least bear the same relationship to diabetes that the thyroid extracts have to hypothyroidism.

Whether the function of islands of Langerhans can be restored by the use of insulin, can not be determined in a year or two. In many cases, because of various infections of the pancreas, most of the glands which secrete the hormone controlling carbohydrate metabolism have been destroyed, and in such cases a cure can not be hoped for and the patient will have to use insulin the rest of his life. It seems probable, however, that there are cases of transient functional pancreatic disturbances and even organic disease of the pancreas with temporary hyposecretion, in which insulin may tide the patient over until the blood-sugar-controlling hormones are being secreted again, when it may be left off. Those who have had much experience with diabetes know that there are periods in some cases when the blood-sugar is within the normal limits, which, after a carbohydrate debauch, from worry and other emotional disturbances, or sometimes without apparent reasons, may show the urine loaded with sugar, acetone and diacetic acid. In such cases, insulin may save the patient from going into coma, and allow him to be well nourished until pancreatic function is restored, or until his carbohydrate tolerance can be determined and he can be taught to live within it.

With insulin, diabetic coma can not only be prevented, it can be relieved, provided the patient has not been in acidosis too long. The results from the use of insulin in diabetic coma are as spectacular, and as sure, as the relief that comes from the injection of antitoxin into a child seemingly dying of toxemia or suffocation in diphtheria, though the physiological effects of insulin and the antitoxins are quite different. Indeed, there is nothing more dra-

matic in medicine than to see a patient in diabetic coma become conscious and almost normal in a few hours after the use of insulin. Therefore, in the severe cases, insulin offers hope of comfort and life. Its use, however, should be controlled by frequent blood-sugar determinations, because an overdose of insulin. Besides, in the severe cases, particularly those in which there is associated chronic nephritis, the patient may have a dangerously high content of sugar in his blood with little or no sugar in his urine.

INSULIN TREATMENT IN GENERAL PRACTICE

In *International Clinics* (Vol. 2, 33rd Series, 1923, p. 21), there is an interesting article by Louis P. Hamburger, of Johns Hopkins University, Baltimore, in which he relates the histories of several patients, both children and adults, who were benefitted markedly and to a surprising degree by insulin treatment, although they had been severely ill with diabetes. One of them, a little girl of about six, was one of the first patients in the United States who received the treatment. The reports do not lend themselves readily to abstracting, but reprints can undoubtedly be obtained on application to Doctor Hamburger.

After illustrating the favorable aspects of this new treatment, as applied to everyday practice, Doctor Hamburger devotes attention to the difficulties, the disadvantages and the untoward effects.

"In the first place," he says, "it requires considerable intelligence and cooperation on the part of those in charge of diabetic patients and on the part of the patients themselves, a knowledge of computing diets, the ability to serve attractively foodstuffs thus computed and to make changes so as to adjust dosage and diet. Instructions given in a properly equipped diet kitchen connected with a hospital will in part solve this first difficulty. The patients should enter such a hospital, the carbohydrate tolerance ascertained and maintenance diet suitable to age, weight and activity should then be instituted. The diet is balanced so far as the ratio of protein, fat and carbohydrates is concerned in accordance with the principles now generally adopted in the management of the diabetic, the high proportion of fat largely covering the caloric deficit. Thereupon, insulin is to be administered in a quantity adequate to render the urine sugar-free.

There will probably be a group of patients otherwise presenting the indications for its use who, because of lack of intelligence and of insight, will be unable to avail themselves of the new treatment."

Insulin is supplied in three strengths, 1 Cc. of fluid containing 5, 10, and 20 units respectively. The doses are injected subcutaneously from 15 to 30 minutes before two meals, and the larger dose is supplied only to physicians who have had prolonged experience.

Hypoglycemic reactions have been described in the abstract of Doctor Banting's paper and constitute undoubtedly a difficult factor in the treatment. Altogether, we are impressed with the fact that, at least for the present, this form of therapy can be administered successfully only in hospitals, unless the patients are of more than average intelligence or unless they are financially able to employ nurse and physician for prolonged periods of time.

THE PRACTICAL USE OF INSULIN

Dr. Orlando H. Petty, of the Jefferson Medical College, Philadelphia, who also has an interesting article on the practical use of insulin in treating diabetes in *International Clinics* (Vol. 2, 33rd Series, 1923, p. 36) offers the following conclusions from his experience.

1.—Insulin is the active, potent, internal secretion of the islands of Langerhans.

2.—Insulin, if properly administered, e. i., subcutaneously in appropriate amounts and at proper intervals, will reduce the blood-sugar to normal, render the urine sugar-free, and, if the diet is properly arranged, will enable the diabetic to continue his usual professional or business pursuits without fear of acidosis or exhaustion.

3.—Diabetics requiring operation, by the use of insulin can be put in such a condition, in short time, that only the choice of anesthetics need be considered.

4.—Untreated or improperly managed diabetics who have gone into coma, even with pernicious vomiting, can be restored to consciousness within a few hours, and, ultimately, to a pleasant and useful life, if insulin is heroically yet carefully administered.

INSULIN IN THE MAYO CLINIC

The Medical Clinics of North America for July 1923, which is the Mayo Clinic Number, contains three articles on insulin, the new treatment for diabetes mellitus.

Dr. Russell M. Wilder presents a historical and technical sketch of this interesting substance.

The experience of the Mayo Clinic is based on the treatment of 150 patients. At present, there are 50 or more patients in the diabetic service in the Clinic, more than 40 of whom are receiving insulin.

Of the 150 patients, 3 died in the hospital, although death in no case was due to the treatment. On the other hand, in more than 20 cases of diabetic acidosis and in 4 patients in actual coma, the trouble was promptly controlled. In progressive cases of diabetes, of several years' standing, insulin, when used as an adjunct to the other treatment, brought about striking improvement and restored carbohydrate tolerance, resulting in a notable gain in weight with proportionate improvement in strength and vitality. These results usually were obtained within a few months. Doctor Wilder cautions, however, against attributing to the insulin all the improvement that has occurred. A spirit of optimism, he says, and of buoyant enthusiasm permeates the wards and affects all residents. This in itself, as will be recognized, is the best medicine for the diabetic patient and may be partly responsible for the rapid recoveries observed. Nevertheless, actual physical results of insulin treatment seem to justify this enthusiasm, the more so as the carefully-controlled observations made in the metabolism ward confirm the impression received from the general service.

In the same issue of the Mayo Clinic Number, S. Franklin Adams has an article on "Food Mixtures Suitable for Diabetic Patients Receiving Insulin and a Method for Calculating Diets". To this, he presents the following summary:

Several important considerations regarding dietotherapy for diabetic patients are reviewed. A system of diets is described which has taken these considerations into account.

A modification of the monographic chart for the calculation of low maintenance diets for diabetic patients is described. A new scale has been introduced by means of which it is possible to determine the sugar value of the diets.

This chart has the advantage of being a simple and accurate means of determining, by the single setting of a straight-edge, the amount of fat, carbohydrate, and protein of an aketogenic diet, its total calories, and sugar value, when any two of these five variables are known and fixed.

Finally, Clifford J. Barborka writes on: "Use of Insulin in the Treatment of Diabetes" in which he limits his discussion to a description of the actual procedures now employed in the Mayo Clinic in the treatment of patients requiring insulin. Since the method followed in The Mayo Clinic differs in several particulars from the methods of other clinics, the paper is interesting in various respects.

Barborka concludes:

"It is to be expected that further improvement in the treatment of diabetes will soon be forthcoming. The wide-spread interest in this field, which has been stimulated by the introduction of insulin, and the numerous chemical and clinical investigations now in progress in many centers will, undoubtedly, bear fruit in the form of further advances. In the interval, it is the obvious duty of the profession to make the best possible use of insulin which, if used wisely, should as materially improve the life expectancy of the diabetic patient as it certainly adds immeasurably to his feeling of well-being and happiness.

These three papers from The Mayo Clinic have attached a bibliography of fifty-two references, the last one being that of a special insulin issue of the *Journal of Metabolic Research* and which contains ten further articles on the subject.

EXAMINATION TESTS

Where can a man buy a cap for his knee,
Or a key to the lock of his hair?
Can his eyes be called an academy,
Because there are pupils there?
In the crown of your head, what jewels are found?
Who travels the bridge of your nose?
If you want to shingle the roof of your mouth,
Would you use the nails of your toes?
Can you sit in the shade of the palm of your hand,
Or beat the drum of your ear?
Can the calf of your leg eat the corn on your toe?
Then why not grow corn on the ear?
Can the crook in your elbow be sent to jail?
If so, what did it do?
How can you sharpen your shoulder blade?
I'll be cussed if I know, do you?

—"The Hamiltonian."

Among the Books

BOK: "A MAN FROM MAINE"

A Man From Maine. By Edward W. Bok. Illustrated. New York: Charles Scribner's Sons. 1923. Price $3.00.

We believe that most people will start reading this book because they have been impressed so much with Mr. Bok's autobiography, which was published a few years ago and reviewed in CLINICAL MEDICINE for December, 1921. In some way, this present story is very like the "Americanization" book; in other ways, it is entirely different. The mere fact that the author has utilized the biography of Mr. Curtis, the publisher of *The Ladies' Home Journal, The Saturday Evening Post,* and many other periodicals, for his subject is incidental. It occurs to the Reviewer that his main object was, to present a preachment and a convincing argument, or again to propound the idea that appears to be a favorite with him and which can briefly be designated as The Romance of Business. Mr. Bok claims that "the greatest and truest romances are being lived around us in the world of business. For, instead of business being a daily grind, or a deadly routine, it is really a romance of the most thrilling order, and an adventure filled with the most fascinating incidents."

In addition to that, the justification of this book lies in the proper study of mankind which, according to Bok, is not so much of the achievements of man as of man, himself. For, it is a truth which knows no exception, that, behind every great accomplishment, is a man greater than the achievement. A successful life means, first of all, a strong man behind it. The fascination in biography or autobiography lies not as much in the actual accomplishment, as in how the achievement was worked out; that is, in the man and the processes of his kind.

In tracing the life story of Mr. Cyrus H. K. Curtis, in describing his numerous business experiences and his steady progress to success, from the little newsboy to the great publisher, Mr. Bok not only indulges his fondness for depicting a business career in attractive colors but he also unfolds a philosophy, adherence to which is essential for attaining success. He declares, for instance, that "the whole structure of business relations rests upon honesty: confidence in the word of one man upon the word of another." The process of becoming a successful business man may be tedious and slow, but integrity and a name for integrity are essentials and surely pay in the end. "Success is not made over night and there is no royal road to it." Nor is success a matter of chance or of luck. It is persistent plugging and working and learning, gathering experience and laying the foundation for things to come. As to the opinion expressed sometimes by those who would like to be successful, but who are not willing to pay the price and, as an excuse, claim that opportunities are no longer to be found, Mr. Bok would say, "the chances for the young man of today are far more numerous than they were forty years ago; certainly, the opportunities are more varied and larger in scope."

Like the earlier book of Mr. Bok's, this one can be read and reread with increasing enjoyment. It has impressed us as a book for boys; for boys from eight or ten to eighty years young, and upward. It has been truly said that men are but boys grown up. Surely, they are. They thrill just as much at adventures, like the Nick Carter books, the Leather-Stocking Tales and at detective stories, as when they were ten. They may even revert to boyhood's vernacular when expressing their appreciation. To read of one boy's business adventures, starting as a newsboy and then doing business with a two and one-half dollar handpress, going on to a three hundred thousand dollar (and more) printing juggernaut —gee, it's great! I betcha a hundred million dollars you couldn't do it! Ah, gee, of course I could! I betcha a hundred billion I could! I betcha—and, so you could, providing that you have the GUTS.

WALSH: "CURES"

Cures. The Story of the Cures That Fail. By James J. Walsh, M. D., Sc. D. New York: D. Appleton and Company. 1923. Price $2.00.

Here is a book the interest of which is by no means limited to a discussion of the vari-

ous special cures that have been exploited since the distant past and down to the most recent present, but which has its application to the everyday problems of the medical practitioner. Moreover, it possesses the very desirable and excellent peculiarity of making the reader think. This is not true of every book. Some of them are delightful and soothing soporifics. You can read them, spending a pleasant few hours; and that is all there is to it. There is nothing to stay with you, nothing to exercise your powers of ratiocination, nothing to influence your daily work, beneficially.

As already said, Doctor Walsh's latest contribution to medical literature is not of that type. His principal idea seems to be, that all the numerous "cures" that have had their vogue, whether they dealt with physical means or not, wrought their beneficent effects through influencing the mind of the sick. They caused the sick to believe themselves benefited and, lo and behold, they *were* improved.

The question suggests itself naturally whether Doctor Walsh tacitly assumes or deliberately means to suggest that many of the present-day methods of treating our sick actually are meritorious in the same manner and for the same reason. The Reviewer cannot find that the author is actually a therapeutic nihilist; yet, he has the impression that the author would not hesitate, if he were asked, to express a definite opinion that many of the present-day accepted and well-established methods of treatment cure, or at least benefit, the patients through the same agency. Whether they do or not, is of import in many ways, to be sure. Finally, though, the first aim of the doctor is, to benefit his patient. Whether he benefits him mentally or physically is of minor importance.

Do not misunderstand. We do not mean to suggest that it does not matter *how* patients are relieved of their aches and pains. We are thoroughly convinced of the necessity of study, investigation and the fullest possible understanding of disease processes. Nevertheless, if we can determine that the patient's mentality is most in need of aid, then the most important thing is, to influence and benefit that mentality, and the nature of the means adopted, whether they be physical or mental, is of subordinate interest.

WEBSTER: "DIAGNOSTIC METHODS"

Diagnostic Methods. Chemical, Bacteriological and Microscopical. A Textbook for Students and Practitioners. By Ralph W. Webster, M. D., Ph. D. Seventh Edition, Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston Son & Co. 1923. Price $8.00.

A new edition of a well-known textbook which is a favorite with laboratory workers. It embodies the results of considerable research along many lines of clinical diagnosis, which have been recorded since the last edition of "Webster" was published. Among the new material contained in this present edition, the publishers enumerate the following: New methods for typing pneumococci in sputum; a discussion of the subject of bronchial spirochetosis; Albert's stain for diphtheria bacilli; fractional method of Rehfuss for examination of stomach contents; Melzer-Lyon method for obtaining bile; the brine flotation-loop method of Kofoid and Barber for detecting ova in stools; Bell and Doisy's method for inorganic phosphates, total and organic phosphorus in urine and blood; Folin's method for amino-acids in urine, Urea concentration test of MacLean and de Wesselow; Hektoen's precipitin test for semen; Van Slyke's method of determining oxygen capacity and hemoglobin content of blood; Stadie's method for methemoglobin in blood; Van Slyke and Silverson's method for carbon monoxid in blood; Benedict's new method for uric acid in blood; Tisdall's method for inorganic phosphates in blood; Kramer and Tisdall's method for calcium in blood; Whitehorn's method for chlorides in blood; Kolmer's standardized quantitative Wassermann test; Warthin and Starry's method for spironemata in tissue; Noguchi's new method for proteins in cerebrospinal fluid; colloidal benzoin test of Guillain, Laroche and Lechelle; and an extended discussion and description of the various pathogenic anaërobic organisms which are found in wounds, especially the vibrion septique, Bacillus oedematicus; Bacillus sporogenes and Bacillus tetani. Under this head is included a discussion of Bacillus botulinus as a pathogenic anaërobe. Throughout the subject matter of the text, new material has been inserted and references have been revised up-to-date, in order to increase the working value of the book as a reference work.

"URANALYSIS"

Untersuchungen des Harns. Hans Kleinmann, Berlin: Bestimmung des allegemeinen physikalischen Verhaltens des Harns.—Emil Reiss (✝), Frankfurt a. Main: Die Refraktometrische Untersuchung des Harns.—E. Querner und W. Weise, Hamburg: Undersuchung der Harnsedimente. Berlin & Wien: Urban

& Schwarzenberg. 1923.

This is a portion of the well-known "Handbuch der biologischen Arbeitsmethoden" (Handbook of Biologic Working Methods) edited by Professor Emil Abderhalden. It contains three articles, namely: the determination of the general physical aspects of urine; the refractometric examination of urine; and, the examination of urinary sediments. The methods outlined are reproduced from the publications of their originators. The book will be of interest to laboratory technicians.

LANDOIS: "PHYSIOLOGY"

Landois' Lehrbuch der Physiologie des Menschen mit besonderer Berücksichtigung der praktischen Medizin. Achtzehnte Auflage. Bearbeitet von Dr. R. Rosemann. Illustrated. Berlin & Wien. Urban & Schwarzenberg. 1923. Price 21 frs (Swiss), or $5.25 plus charges.

When a book has been translated into English (one English and one American edition), into French, Japanese, Italian, Russian and Spanish, it may be expected to be thoroughly well known. Indeed, Landois' textbook of physiology, whether in the English edition by Stirling or the American edition by Brubaker, is well known to American physicians. All the more welcome is an opportunity to examine this truly classical work in the German text, especially because, in the nature of things, it will probably be some time before this present, eighteenth, edition is obtainable in other languages. The work is very complete and its excellence has been maintained by Professor Rosemann who, through years of association as a pupil and as a colleague, has become familiar with Landois' ideas and views. American physicians who read German will find Landois' textbook of physiology eminently useful.

ZINSSER: "INFECTION AND RESISTANCE"

Infection and Resistance. An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease, with a Consideration of the Principles Underlying Specific Diagnosis and Therapeutic Measures. By Hans Zinsser, M. D. New York: The Macmillan Company. 1923.

This is one of the two treatises on the subject, extant in American literature, which, in the Reviewer's opinion, are the most useful ones and, indeed, rank far above all other competitors. The appearance of a new edition of Zinsser's "Infection and Resistance" must cause satisfaction; for, a subject concerning which the ideas of investigators are so much in a state of flux and so constantly in progress of development and of elaboration, necessarily requires revision and rewriting from time to time. As a matter of fact, this third edition, the author informs us, is a virtual rewriting of the original book.

The study of "Zinsser" always has given us great satisfaction, because of his remarkably lucid and definite treatment of the subject. Not that the text is by any means simple; in fact, the author has made no attempt to write an A B C of immunity, nor does he try to present any quick means for comprehending the immunity processes. No true insight into any branch of medicine, or, for that matter, into any other science, can be attained, he says, without a certain amount of effort. Consequently to gain an understanding of immunity processes, devoted study is necessary. However, that condition being complied with, Zinsser's book affords to the student a remarkably helpful means.

We have reviewed this book before and may spare ourselves an enumeration of the chapter headings. Suffice it to say that the text is very complete and that it has been made all the more available by a well-planned and executed index.

McKENZIE: "EXERCISE"

Exercise in Education and Medicine. By R. Tait McKenzie, M. D. Third Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company. 1923.

It is high time that the problems of physical exercise be firmly established as coming within the guidance of the medical profession. Altogether too much have they been left with strong-arm artists who are fond of publishing pictures of their over-developed biceps muscles, indulging in promises that either possess no point at all or that cannot be kept.

McKenzie's conservative and sensible discussion of exercise in all its various forms lends dignity to it and enables the physician to select that part of this important therapeutic agent that, in his opinion, is best suited for the patient in need of it.

DEAVER AND REIMANN: "SURGICAL SUBJECTS"

Excursions into Surgical Subjects. By John B. Deaver, M. D. and Stanley P. Reimann, M. D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1923. Price $4.50.

The titles of the addresses or papers reproduced in this volume are as follows: Peptic Ulcer; Jaundice; Diseases of the Bile-Passages; Trials, Tribulations and Joys of a Surgeon; Some Surgical Conditions of the Intestinal Tract; The Contribution of Pasteur to Modern Surgery; Medical Education and Educators; Living Pathology.

We believe that they will be sufficient to attract many purchasers of the book.

MEDICAL CLINICS OF NORTH AMERICA

The July issue of the *Medical Clinics of North America* is the Mayo Clinic Number. It contains several articles on insulin, the new organotherapeutic preparation elaborated by Banting, of Toronto, for the treatment of diabetes mellitus. Other articles of importance deal with cholecystitis; ulcerative colitis; the importance of proctoscopic examinations; enuresis in children, and many other topics of interest.

The Medical Clinics of North America, published bi-monthly by W. B. Saunders Company, at a subscription price of $12.00 a year, constitutes a depository of the best clinical teachings in our country at the present time. Successive issues are representative of the great clinics in the various medical centers of the country. The individual articles are invariably well written, presenting their information in such form as to be of practical use to the general practitioner.

"COLLECTED PAPERS OF THE MAYO CLINIC"

Collected Papers of the Mayo Clinic, Rochester, Minn. Edited by Mrs. M. H. Mellish. Volume XIV, 1922. Published June, 1923. Philadelphia and London: W. B. Saunders Company. 1923. Price $13.00.

Some of the enormous amount of work that is accomplished in the Mayo Clinic may be sensed on examining this latest volume of the collected papers which, we believe, is larger than any of the preceding thirteen volumes. It seems that there is not a single function in the human body that is not investigated in Rochester, and there is not any disturbance of function, nor any actual lesion, that does not come to the attention and under the care of the Mayo staff. The work represented by the papers reprinted in this volume of 1,346 pages of text is enormous and is roughly subdivided in contributions pertaining to the alimentary tract; the urogenital organs; the ductless glands; blood and circulatory organs; head, trunk and extremities; skin and syphilis; brain, spinal cord and nerves; organic and physiologic chemistry; general—miscellaneous; technic.

The editorial work by Mrs. Mellish shows the care and efficiency to which we are accustomed from her. The Index is well prepared and, therefore, of service.

"THE MAYO FOUNDATION"

Papers from The Mayo Foundation for Medical Education and Research and The Medical School. II. 1921-1922. Philadelphia and London: W. B. Saunders Company. 1923. Price $10.00.

Here is another volume of Mayo reprints, although it is so only indirectly, inasmuch as, instead of emanating from the Mayo Clinics, the papers originated in the Mayo Foundation. The subdivisions correspond to those of the volume that we have just considered. The individual papers cover numerous important subjects. Altogether, the volume must attract the attention of students.

"MERCK'S MANUAL

Merck's Manual of the Materia Medica. A Ready-Reference Pocket Book for the Physician and Surgeon. Fifth edition. Compiled and published by Merck & Co., St. Louis, New York, Montreal. Works at Rahway, N. J. 1923.

The Reviewer was delighted to receive a new edition of Merck's Manual which has been a frequent source of reference for many years. It contains an alphabetical list of drugs, chemicals and preparations in current use; therapeutic indications and prescription formulas; classification of medicaments according to physiologic action, and a miscellany comprising an essay on poisoning and its treatment; an exhaustive dose table; a chart showing the diagnostic points of difference between the eruptive fevers; also an obstetrical chart; thermometric equivalents; approximate measures; approximate metric equivalents. Then uranalysis; feeding table for infants, etc. A regular *multum in parvo.* It is a dandy book!